

STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
RALEIGH, N.C.

PROPOSAL

INCLUDES ADDENDUM No. 2 DATED 05-11-2017
INCLUDES ADDENDUM No. 1 DATED 04-24-2017

DATE AND TIME OF BID OPENING: **MAY 16, 2017 AT 2:00 PM**

CONTRACT ID C204020
WBS 44973.3.3

VOID FOR BIDDING

FEDERAL-AID NO. NC FLAP DOT OIMMT(1)
COUNTY HYDE, DARE
T.I.P. NO. F-5702C
MILES 0.000
ROUTE NO.
LOCATION NC-12.

TYPE OF WORK CONSTRUCTION OF ONE PASSENGER FERRY.

NOTICE:

ALL BIDDERS SHALL COMPLY WITH ALL APPLICABLE LAWS REGULATING THE PRACTICE OF GENERAL CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA WHICH REQUIRES THE BIDDER TO BE LICENSED BY THE N.C. LICENSING BOARD FOR CONTRACTORS WHEN BIDDING ON ANY NON-FEDERAL AID PROJECT WHERE THE BID IS \$30,000 OR MORE, EXCEPT FOR CERTAIN SPECIALTY WORK AS DETERMINED BY THE LICENSING BOARD. BIDDERS SHALL ALSO COMPLY WITH ALL OTHER APPLICABLE LAWS REGULATING THE PRACTICES OF ELECTRICAL, PLUMBING, HEATING AND AIR CONDITIONING AND REFRIGERATION CONTRACTING AS CONTAINED IN CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA. NOTWITHSTANDING THESE LIMITATIONS ON BIDDING, THE BIDDER WHO IS AWARDED ANY FEDERAL - AID FUNDED PROJECT SHALL COMPLY WITH CHAPTER 87 OF THE GENERAL STATUTES OF NORTH CAROLINA FOR LICENSING REQUIREMENTS WITHIN 60 CALENDAR DAYS OF BID OPENING.

BIDS WILL BE RECEIVED AS SHOWN BELOW:

THIS IS A FERRY PROPOSAL

5% BID BOND OR BID DEPOSIT REQUIRED

PROPOSAL FOR THE CONSTRUCTION OF:

Project No. WBS 44973.3.3

in **Dare & Hyde Counties**, North Carolina

Department of Transportation

Raleigh, North Carolina

The Bidder has carefully examined the specifications and plans of the proposed work to be known as Project No. **WBS 44973.3.3**, which are acknowledged to be part of the proposal, the special provisions, the proposal, the form of contract, and the forms of contract payment bond and contract performance bond; and thoroughly understands the stipulations, requirements and provisions. The undersigned bidder agrees to bound upon his execution of the bid and subsequent award to him by the Board of Transportation in accordance with this proposal to provide the necessary contract payment bond and contract performance bond within fourteen days after the written notice of award is received by him. The undersigned Bidder further agrees to provide all necessary machinery, tools, labor, and other means of construction; and to do all the work and to furnish all materials, except as otherwise noted, necessary to perform and complete the said contract by **12:00 Noon on April 28, 2018** and in accordance with the requirements of the Engineer, and at the unit or lump sum prices, as the case may be, for the various items given on the sheets contained herein.

The Bidder shall provide and furnish all the materials, machinery, implements, appliances and tools, and perform the work and required labor to construct and complete State Highway Project No. **WBS 44973.3.3 for Dare & Hyde Counties**, for the unit or lump sum prices, as the case may be, bid by the Bidder in his bid and according to the proposal, plans, and specifications prepared by said Department, which proposal, plans, and specifications show the details covering this project, and hereby become a part of this contract.

If the proposal is accepted and the award is made, the contract is valid only when signed either by the Contract Officer or such other person as may be designated by the Secretary to sign for the Department of Transportation. The conditions and provisions herein cannot be changed except over the signature of the said Contract Officer.

Accompanying this bid is a bid bond secured by a corporate surety, or certified check payable to the order of the Department of Transportation, for five percent of the total bid price, which deposit is to be forfeited as liquidated damages in case this bid is accepted and the Bidder shall fail to provide the required payment and performance bonds with the Department of Transportation, under the condition of this proposal, within 14 calendar days after the written notice of award is received by him, as provided in the Standard Specifications; otherwise said deposit will be returned to the Bidder.

DocuSigned by:
Contract Standards and Development
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5/11/2017 | 2:56 PM EDT

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PROJECT SPECIAL PROVISIONS

EXECUTION OF SIGNATURE SHEETS

(6-17-82)

The Bidder's attention is directed to the various sheets in the proposal form which are to be signed by the Bidder. A list of these sheets is shown below. The bid bond is inserted in the proposal form.

1. Listing of DBE subcontractors
2. Facility Location
3. Labor and Materials
4. Cost Breakdown
5. Item sheet
6. Additional Ferry Vessel bid sheet
7. Execution of Bid Sheets: 1, 2, 3, 4, 5, or 6 (Bid)
8. Bid Bond (Proposal Insert)

PROPRIETARY ITEMS ON PLANS

The Contractor's attention is directed to the fact that there are numerous references to proprietary items listed throughout the contract plans. These references shall not supersede the provisions in the contract proposal. Other products of equal quality may be used provided they meet or exceed the requirements of the special provisions and are approved for use by the Ferry Division. In those instances where there is no provision in the contract proposal to cover the work, the plan information shall apply unless otherwise directed by the Ferry Division.

MANDATORY PRE-BID CONFERENCE (Prequalifying To Bid):

(7-18-06) (Rev. 3-25-13)

SPI 1-14

In order for all prospective bidders to have an extensive knowledge of the project, all prospective bidders shall attend a mandatory pre-bid conference at **1:00 p.m., Tuesday, April 18, 2017.**

NCDOT Ferry Division Shipyard
8550 Shipyard Rd.
Manns Harbor, North Carolina 27953
Phone (252) 473-3461

The pre-bid conference will include a thorough discussion of the plans, contract pay items, special provisions, etc.

Only bidders who have attended and properly registered at the above scheduled pre-bid conference and who have met all other prequalification requirements will be considered prequalified to bid on this project. A bid received from a bidder who has not attended and properly registered at the above scheduled pre-bid conference will not be accepted and considered for award.

Attendance at the pre-bid conference will not meet the requirements of proper registration unless the individual attending has registered at the pre-bid conference in accordance with the following:

- (A) The individual has signed his name on the official roster no later than thirty (30) minutes after the above noted time for the beginning of the conference.
- (B) The individual has written in the name and address of the company he or she represents.
- (C) Only one company has been shown as being represented by the individual attending.
- (D) The individual attending is an officer or permanent employee of the company they are representing.

Attendance at any prior pre-bid conference will not meet the requirement of this provision.

SCHEDULE OF ESTIMATED COMPLETION PROGRESS:

(7-15-08) (Rev. 5-17-16)

108-2

SP1 G58

The Contractor's attention is directed to the Standard Special Provision entitled *Availability of Funds Termination of Contracts* included elsewhere in this proposal. The Department of Transportation's schedule of estimated completion progress for this project as required by that Standard Special Provision is as follows:

	<u>Fiscal Year</u>	<u>Progress (% of Dollar Value)</u>
2017	(7/01/16 - 6/30/17)	7 % of Total Amount Bid
2018	(7/01/17 - 6/30/18)	93 % of Total Amount Bid

The Contractor shall also furnish his own progress schedule in accordance with Article 108-2 of the *2012 Standard Specifications*. Any acceleration of the progress as shown by the Contractor's progress schedule over the progress as shown above shall be subject to the approval of the Engineer.

DOMESTIC STEEL AND IRON PRODUCTS:

(April 19, 1994)

The requirements of this provision do NOT apply to certain ferry boat equipment and machinery items. These items include marine diesel engines, electrical switchboards and switchgear, electric motors, pumps, ventilation fans, boilers, electrical controls and electronic equipment. The use of these specific equipment and machinery items, which have been manufactured outside the United States, is permitted for ferry boat construction.

Except as provided in the above paragraph, all steel and iron products which are permanently incorporated into this project shall be produced in the United States. Minimal amounts of foreign steel and iron products may be used provided the combined project cost of the bid items involved does not exceed one-tenth of one percent (0.1 percent) of the total amount bid for the entire project or \$2,500.00, whichever is greater. This minimal amount of foreign produced steel and iron products permitted for use by this Special Provision is not applicable to fasteners. Domestically produced fasteners are required for this project.

All steel and iron products furnished as "domestic products" shall be melted, cast, formed, shaped, drawn, extruded, forged, fabricated, produced, or otherwise processed and manufactured in the United States. Raw materials used in manufacturing "domestic" steel and iron products may be imported; however, all manufacturing processes to produce the products, including coatings, must occur in the United States.

Before each steel or iron product is incorporated into this project or included for partial payment on a monthly estimate, the Contractor shall furnish the Resident Engineer a notarized certification certifying that the product conforms to the above requirements of this Special Provision. The Resident Engineer will forward a copy of each certification to the Materials and Tests Unit.

Each purchase order issued by the Contractor or a subcontractor for steel and iron products to be permanently incorporated into this project shall contain in bold print a statement advising the supplier that all manufacturing processes to produce the steel or iron shall have occurred in the United States. The Contractor and all affected subcontractors shall maintain a separate file for steel products permanently incorporated into this project so that verification of the Contractor's efforts to purchase "domestic" steel and iron products can readily be verified by an authorized representative of the Department or the Federal Highway Administration.

DISADVANTAGED BUSINESS ENTERPRISE:

(10-16-07)(Rev. 1-17-17)

102-15(J)

SP1 G61

Description

The purpose of this Special Provision is to carry out the U.S. Department of Transportation's policy of ensuring nondiscrimination in the award and administration of contracts financed in whole or in part with Federal funds. This provision is guided by 49 CFR Part 26.

Definitions

Additional DBE Subcontractors - Any DBE submitted at the time of bid that will not be used to meet the DBE goal. No submittal of a Letter of Intent is required.

Committed DBE Subcontractor - Any DBE submitted at the time of bid that is being used to meet the DBE goal by submission of a Letter of Intent. Or any DBE used as a replacement for a previously committed DBE firm.

Contract Goal Requirement - The approved DBE participation at time of award, but not greater than the advertised contract goal.

DBE Goal - A portion of the total contract, expressed as a percentage, that is to be performed by committed DBE subcontractor(s).

Disadvantaged Business Enterprise (DBE) - A firm certified as a Disadvantaged Business Enterprise through the North Carolina Unified Certification Program.

Goal Confirmation Letter - Written documentation from the Department to the bidder confirming

the Contractor's approved, committed DBE participation along with a listing of the committed DBE firms.

Manufacturer - A firm that operates or maintains a factory or establishment that produces on the premises, the materials or supplies obtained by the Contractor.

Regular Dealer - A firm that owns, operates, or maintains a store, warehouse, or other establishment in which the materials or supplies required for the performance of the contract are bought, kept in stock, and regularly sold to the public in the usual course of business. A regular dealer engages in, as its principal business and in its own name, the purchase and sale or lease of the products in question. A regular dealer in such bulk items as steel, cement, gravel, stone, and petroleum products need not keep such products in stock, if it owns and operates distribution equipment for the products. Brokers and packagers are not regarded as manufacturers or regular dealers within the meaning of this section.

North Carolina Unified Certification Program (NCUCP) - A program that provides comprehensive services and information to applicants for DBE certification, such that an applicant is required to apply only once for a DBE certification that will be honored by all recipients of USDOT funds in the state and not limited to the Department of Transportation only. The Certification Program is in accordance with 49 CFR Part 26.

United States Department of Transportation (USDOT) - Federal agency responsible for issuing regulations (49 CFR Part 26) and official guidance for the DBE program.

Forms and Websites Referenced in this Provision

DBE Payment Tracking System - On-line system in which the Contractor enters the payments made to DBE subcontractors who have performed work on the project.
<https://apps.dot.state.nc.us/Vendor/PaymentTracking/>

DBE-IS Subcontractor Payment Information - Form for reporting the payments made to all DBE firms working on the project. This form is for paper bid projects only.
<https://connect.ncdot.gov/business/Turnpike/Documents/Form%20DBE-IS%20Subcontractor%20Payment%20Information.pdf>

RF-1 DBE Replacement Request Form - Form for replacing a committed DBE.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/DBE%20MBE%20WBE%20Replacement%20Request%20Form.pdf>

SAF Subcontract Approval Form - Form required for approval to sublet the contract.
<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Subcontract%20Approval%20Form%20Rev.%202012.zip>

JC-1 Joint Check Notification Form - Form and procedures for joint check notification. The form acts as a written joint check agreement among the parties providing full and prompt disclosure of the expected use of joint checks.

<http://connect.ncdot.gov/projects/construction/Construction%20Forms/Joint%20Check%20Notification%20Form.pdf>

Letter of Intent - Form signed by the Contractor and the DBE subcontractor, manufacturer or regular dealer that affirms that a portion of said contract is going to be performed by the signed DBE for the amount listed at the time of bid.

<http://connect.ncdot.gov/letting/LetCentral/Letter%20of%20Intent%20to%20Perform%20as%20a%20Subcontractor.pdf>

Listing of DBE Subcontractors Form - Form for entering DBE subcontractors on a project that will meet this DBE goal. This form is for paper bids only.

[http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20\(Federal\).docx](http://connect.ncdot.gov/municipalities/Bid%20Proposals%20for%20LGA%20Content/08%20DBE%20Subcontractors%20(Federal).docx)

Subcontractor Quote Comparison Sheet - Spreadsheet for showing all subcontractor quotes in the work areas where DBEs quoted on the project. This sheet is submitted with good faith effort packages.

<http://connect.ncdot.gov/business/SmallBusiness/Documents/DBE%20Subcontractor%20Quote%20Comparison%20Example.xls>

DBE Goal

The following DBE goal for participation by Disadvantaged Business Enterprises is established for this contract:

Disadvantaged Business Enterprises **0.0** %

- (A) *If the DBE goal is more than zero*, the Contractor shall exercise all necessary and reasonable steps to ensure that DBEs participate in at least the percent of the contract as set forth above as the DBE goal.
- (B) *If the DBE goal is zero*, the Contractor shall make an effort to recruit and use DBEs during the performance of the contract. Any DBE participation obtained shall be reported to the Department.

Directory of Transportation Firms (Directory)

Real-time information is available about firms doing business with the Department and firms that are certified through NCUCP in the Directory of Transportation Firms. Only firms identified in the Directory as DBE certified shall be used to meet the DBE goal. The Directory can be found at the following link. [https:// www.ebs.nc.gov/VendorDirectory/default.html](https://www.ebs.nc.gov/VendorDirectory/default.html)

The listing of an individual firm in the directory shall not be construed as an endorsement of the firm's capability to perform certain work.

Listing of DBE Subcontractors

At the time of bid, bidders shall submit all DBE participation that they anticipate to use during the life of the contract. Only those identified to meet the DBE goal will be considered committed, even though the listing shall include both committed DBE subcontractors and additional DBE subcontractors. Additional DBE subcontractor participation submitted at the time of bid will be used toward the Department's overall race-neutral goal. Only those firms with current DBE certification at the time of bid opening will be acceptable for listing in the bidder's submittal of DBE participation. The Contractor shall indicate the following required information:

(A) Electronic Bids

Bidders shall submit a listing of DBE participation in the appropriate section of Expedite, the bidding software of Bid Express®.

- (1) Submit the names and addresses of DBE firms identified to participate in the contract. If the bidder uses the updated listing of DBE firms shown in Expedite, the bidder may use the dropdown menu to access the name and address of the DBE firm.
- (2) Submit the contract line numbers of work to be performed by each DBE firm. When no figures or firms are entered, the bidder will be considered to have no DBE participation.
- (3) The bidder shall be responsible for ensuring that the DBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that DBE's participation will not count towards achieving the DBE goal.

(B) Paper Bids

- (1) *If the DBE goal is more than zero,*
 - (a) Bidders, at the time the bid proposal is submitted, shall submit a listing of *DBE* participation, including the names and addresses on *Listing of DBE Subcontractors* contained elsewhere in the contract documents in order for the bid to be considered responsive. Bidders shall indicate the total dollar value of the DBE participation for the contract.
 - (b) If bidders have no DBE participation, they shall indicate this on the *Listing of DBE Subcontractors* by entering the word "None" or the number "0." This form shall be completed in its entirety. **Blank forms will not be deemed to represent zero participation.** Bids submitted that do not have DBE participation indicated on the appropriate form will not be read publicly during the opening of bids. The Department will not consider these bids for award and the proposal will be rejected.

- (c) The bidder shall be responsible for ensuring that the DBE is certified at the time of bid by checking the Directory of Transportation Firms. If the firm is not certified at the time of the bid-letting, that DBE's participation will not count towards achieving the corresponding goal.
- (2) *If the DBE goal is zero*, entries on the *Listing of DBE Subcontractors* are not required for the zero goal, however any DBE participation that is achieved during the project shall be reported in accordance with requirements contained elsewhere in the special provision.

DBE Prime Contractor

When a certified DBE firm bids on a contract that contains a DBE goal, the DBE firm is responsible for meeting the goal or making good faith efforts to meet the goal, just like any other bidder. In most cases, a DBE bidder on a contract will meet the DBE goal by virtue of the work it performs on the contract with its own forces. However, all the work that is performed by the DBE bidder and any other DBE subcontractors will count toward the DBE goal. The DBE bidder shall list itself along with any DBE subcontractors, if any, in order to receive credit toward the DBE goal.

For example, if the DBE goal is 45% and the DBE bidder will only perform 40% of the contract work, the prime will list itself at 40%, and the additional 5% shall be obtained through additional DBE participation with DBE subcontractors or documented through a good faith effort.

DBE prime contractors shall also follow Sections A and B listed under *Listing of DBE Subcontractor* just as a non-DBE bidder would.

Written Documentation – Letter of Intent

The bidder shall submit written documentation for each DBE that will be used to meet the DBE goal of the contract, indicating the bidder's commitment to use the DBE in the contract. This documentation shall be submitted on the Department's form titled *Letter of Intent*.

The documentation shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. of the sixth calendar day following opening of bids, unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

If the bidder fails to submit the Letter of Intent from each committed DBE to be used toward the DBE goal, or if the form is incomplete (i.e. both signatures are not present), the DBE participation will not count toward meeting the DBE goal. If the lack of this participation drops the commitment below the DBE goal, the Contractor shall submit evidence of good faith efforts, completed in its entirety, to the State Contractor Utilization Engineer or DBE@ncdot.gov no later than 10:00 a.m. on the eighth calendar day following opening of bids, unless the eighth day falls on an official state

holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day.

Submission of Good Faith Effort

If the bidder fails to meet or exceed the DBE goal, the apparent lowest responsive bidder shall submit to the Department documentation of adequate good faith efforts made to reach the DBE goal.

A hard copy and an electronic copy of this information shall be received in the office of the State Contractor Utilization Engineer or at DBE@ncdot.gov no later than 10:00 a.m. on the sixth calendar day following opening of bids unless the sixth day falls on an official state holiday. In that situation, it is due in the office of the State Contractor Utilization Engineer no later than 10:00 a.m. on the next official state business day. If the contractor cannot send the information electronically, then one complete set and 9 copies of this information shall be received under the same time constraints above.

Note: Where the information submitted includes repetitious solicitation letters, it will be acceptable to submit a representative letter along with a distribution list of the firms that were solicited. Documentation of DBE quotations shall be a part of the good faith effort submittal. This documentation may include written subcontractor quotations, telephone log notations of verbal quotations, or other types of quotation documentation.

Consideration of Good Faith Effort for Projects with DBE Goals More Than Zero

Adequate good faith efforts mean that the bidder took all necessary and reasonable steps to achieve the goal which, by their scope, intensity, and appropriateness, could reasonably be expected to obtain sufficient DBE participation. Adequate good faith efforts also mean that the bidder actively and aggressively sought DBE participation. Mere *pro forma* efforts are not considered good faith efforts.

The Department will consider the quality, quantity, and intensity of the different kinds of efforts a bidder has made. Listed below are examples of the types of actions a bidder will take in making a good faith effort to meet the goal and are not intended to be exclusive or exhaustive, nor is it intended to be a mandatory checklist.

- (A) Soliciting through all reasonable and available means (e.g. attendance at pre-bid meetings, advertising, written notices, use of verifiable electronic means through the use of the NCDOT Directory of Transportation Firms) the interest of all certified DBEs who have the capability to perform the work of the contract. The bidder must solicit this interest within at least 10 days prior to bid opening to allow the DBEs to respond to the solicitation. Solicitation shall provide the opportunity to DBEs within the Division and surrounding Divisions where the project is located. The bidder must determine with certainty if the DBEs are interested by taking appropriate steps to follow up initial solicitations.

- (B) Selecting portions of the work to be performed by DBEs in order to increase the likelihood that the DBE goals will be achieved.
 - (1) Where appropriate, break out contract work items into economically feasible units to facilitate DBE participation, even when the prime contractor might otherwise prefer to perform these work items with its own forces.
 - (2) Negotiate with subcontractors to assume part of the responsibility to meet the contract DBE goal when the work to be sublet includes potential for DBE participation (2nd and 3rd tier subcontractors).
- (C) Providing interested DBEs with adequate information about the plans, specifications, and requirements of the contract in a timely manner to assist them in responding to a solicitation.
- (D)
 - (1) Negotiating in good faith with interested DBEs. It is the bidder's responsibility to make a portion of the work available to DBE subcontractors and suppliers and to select those portions of the work or material needs consistent with the available DBE subcontractors and suppliers, so as to facilitate DBE participation. Evidence of such negotiation includes the names, addresses, and telephone numbers of DBEs that were considered; a description of the information provided regarding the plans and specifications for the work selected for subcontracting; and evidence as to why additional agreements could not be reached for DBEs to perform the work.
 - (2) A bidder using good business judgment would consider a number of factors in negotiating with subcontractors, including DBE subcontractors, and would take a firm's price and capabilities as well as contract goals into consideration. However, the fact that there may be some additional costs involved in finding and using DBEs is not in itself sufficient reason for a bidder's failure to meet the contract DBE goal, as long as such costs are reasonable. Also, the ability or desire of a prime contractor to perform the work of a contract with its own organization does not relieve the bidder of the responsibility to make good faith efforts. Bidding contractors are not, however, required to accept higher quotes from DBEs if the price difference is excessive or unreasonable.
- (E) Not rejecting DBEs as being unqualified without sound reasons based on a thorough investigation of their capabilities. The bidder's standing within its industry, membership in specific groups, organizations, or associates and political or social affiliations (for example, union vs. non-union employee status) are not legitimate causes for the rejection or non-solicitation of bids in the bidder's efforts to meet the project goal.
- (F) Making efforts to assist interested DBEs in obtaining bonding, lines of credit, or insurance as required by the recipient or bidder.
- (G) Making efforts to assist interested DBEs in obtaining necessary equipment, supplies, materials, or related assistance or services.

- (H) Effectively using the services of available minority/women community organizations; minority/women contractors' groups; Federal, State, and local minority/women business assistance offices; and other organizations as allowed on a case-by-case basis to provide assistance in the recruitment and placement of DBEs. Contact within 7 days from the bid opening the Business Opportunity and Work Force Development Unit at DBE@ncdot.gov to give notification of the bidder's inability to get DBE quotes.
- (I) Any other evidence that the bidder submits which shows that the bidder has made reasonable good faith efforts to meet the DBE goal.

In addition, the Department may take into account the following:

- (1) Whether the bidder's documentation reflects a clear and realistic plan for achieving the DBE goal.
- (2) The bidders' past performance in meeting the DBE goals.
- (3) The performance of other bidders in meeting the DBE goal. For example, when the apparent successful bidder fails to meet the DBE goal, but others meet it, you may reasonably raise the question of whether, with additional reasonable efforts the apparent successful bidder could have met the goal. If the apparent successful bidder fails to meet the DBE goal, but meets or exceeds the average DBE participation obtained by other bidders, the Department may view this, in conjunction with other factors, as evidence of the apparent successful bidder having made a good faith effort.

If the Department does not award the contract to the apparent lowest responsive bidder, the Department reserves the right to award the contract to the next lowest responsive bidder that can satisfy to the Department that the DBE goal can be met or that an adequate good faith effort has been made to meet the DBE goal.

Non-Good Faith Appeal

The State Contractual Services Engineer will notify the contractor verbally and in writing of non-good faith. A contractor may appeal a determination of non-good faith made by the Goal Compliance Committee. If a contractor wishes to appeal the determination made by the Committee, they shall provide written notification to the State Contractual Services Engineer or at DBE@ncdot.gov. The appeal shall be made within 2 business days of notification of the determination of non-good faith.

Counting DBE Participation Toward Meeting DBE Goal

- (A) Participation

The total dollar value of the participation by a committed DBE will be counted toward the

contract goal requirement. The total dollar value of participation by a committed DBE will be based upon the value of work actually performed by the DBE and the actual payments to DBE firms by the Contractor.

(B) Joint Checks

Prior notification of joint check use shall be required when counting DBE participation for services or purchases that involves the use of a joint check. Notification shall be through submission of Form JC-1 (*Joint Check Notification Form*) and the use of joint checks shall be in accordance with the Department's Joint Check Procedures.

(C) Subcontracts (Non-Trucking)

A DBE may enter into subcontracts. Work that a DBE subcontracts to another DBE firm may be counted toward the contract goal requirement. Work that a DBE subcontracts to a non-DBE firm does not count toward the contract goal requirement. If a DBE contractor or subcontractor subcontracts a significantly greater portion of the work of the contract than would be expected on the basis of standard industry practices, it shall be presumed that the DBE is not performing a commercially useful function. The DBE may present evidence to rebut this presumption to the Department. The Department's decision on the rebuttal of this presumption is subject to review by the Federal Highway Administration but is not administratively appealable to USDOT.

(D) Joint Venture

When a DBE performs as a participant in a joint venture, the Contractor may count toward its contract goal requirement a portion of the total value of participation with the DBE in the joint venture, that portion of the total dollar value being a distinct clearly defined portion of work that the DBE performs with its forces.

(E) Suppliers

A contractor may count toward its DBE requirement 60 percent of its expenditures for materials and supplies required to complete the contract and obtained from a DBE regular dealer and 100 percent of such expenditures from a DBE manufacturer.

(F) Manufacturers and Regular Dealers

A contractor may count toward its DBE requirement the following expenditures to DBE firms that are not manufacturers or regular dealers:

- (1) The fees or commissions charged by a DBE firm for providing a *bona fide* service, such as professional, technical, consultant, or managerial services, or for providing bonds or insurance specifically required for the performance of a DOT-assisted contract, provided the fees or commissions are determined to be reasonable and not excessive as compared with fees and commissions customarily

allowed for similar services.

- (2) With respect to materials or supplies purchased from a DBE, which is neither a manufacturer nor a regular dealer, count the entire amount of fees or commissions charged for assistance in the procurement of the materials and supplies, or fees or transportation charges for the delivery of materials or supplies required on a job site (but not the cost of the materials and supplies themselves), provided the fees are determined to be reasonable and not excessive as compared with fees customarily allowed for similar services.

Commercially Useful Function

(A) DBE Utilization

The Contractor may count toward its contract goal requirement only expenditures to DBEs that perform a commercially useful function in the work of a contract. A DBE performs a commercially useful function when it is responsible for execution of the work of the contract and is carrying out its responsibilities by actually performing, managing, and supervising the work involved. To perform a commercially useful function, the DBE shall also be responsible with respect to materials and supplies used on the contract, for negotiating price, determining quality and quantity, ordering the material and installing (where applicable) and paying for the material itself. To determine whether a DBE is performing a commercially useful function, the Department will evaluate the amount of work subcontracted, industry practices, whether the amount the firm is to be paid under the contract is commensurate with the work it is actually performing and the DBE credit claimed for its performance of the work, and any other relevant factors.

(B) DBE Utilization in Trucking

The following factors will be used to determine if a DBE trucking firm is performing a commercially useful function:

- (1) The DBE shall be responsible for the management and supervision of the entire trucking operation for which it is responsible on a particular contract, and there shall not be a contrived arrangement for the purpose of meeting DBE goals.
- (2) The DBE shall itself own and operate at least one fully licensed, insured, and operational truck used on the contract.
- (3) The DBE receives credit for the total value of the transportation services it provides on the contract using trucks it owns, insures, and operates using drivers it employs.
- (4) The DBE may subcontract the work to another DBE firm, including an owner-operator who is certified as a DBE. The DBE who subcontracts work to another DBE receives credit for the total value of the transportation services the subcontracted DBE provides on the contract.

- (5) The DBE may also subcontract the work to a non-DBE firm, including from an owner-operator. The DBE who subcontracts the work to a non-DBE is entitled to credit for the total value of transportation services provided by the non-DBE subcontractor not to exceed the value of transportation services provided by DBE-owned trucks on the contract. Additional participation by non-DBE subcontractors receives credit only for the fee or commission it receives as a result of the subcontract arrangement. The value of services performed under subcontract agreements between the DBE and the Contractor will not count towards the DBE contract requirement.
- (6) A DBE may lease truck(s) from an established equipment leasing business open to the general public. The lease must indicate that the DBE has exclusive use of and control over the truck. This requirement does not preclude the leased truck from working for others during the term of the lease with the consent of the DBE, so long as the lease gives the DBE absolute priority for use of the leased truck. This type of lease may count toward the DBE's credit as long as the driver is under the DBE's payroll.
- (7) Subcontracted/leased trucks shall display clearly on the dashboard the name of the DBE that they are subcontracted/leased to and their own company name if it is not identified on the truck itself. Magnetic door signs are not permitted.

DBE Replacement

When a Contractor has relied on a commitment to a DBE firm (or an approved substitute DBE firm) to meet all or part of a contract goal requirement, the contractor shall not terminate the DBE for convenience. This includes, but is not limited to, instances in which the Contractor seeks to perform the work of the terminated subcontractor with another DBE subcontractor, a non-DBE subcontractor, or with the Contractor's own forces or those of an affiliate. A DBE may only be terminated after receiving the Engineer's written approval based upon a finding of good cause for the termination. The prime contractor must give the DBE firm five (5) calendar days to respond to the prime contractor's notice of termination and advise the prime contractor and the Department of the reasons, if any, why the firm objects to the proposed termination of its subcontract and why the Department should not approve the action.

All requests for replacement of a committed DBE firm shall be submitted to the Engineer for approval on Form RF-1 (*DBE Replacement Request*). If the Contractor fails to follow this procedure, the Contractor may be disqualified from further bidding for a period of up to 6 months.

The Contractor shall comply with the following for replacement of a committed DBE:

(A) Performance Related Replacement

When a committed DBE is terminated for good cause as stated above, an additional DBE that was submitted at the time of bid may be used to fulfill the DBE commitment. A good

faith effort will only be required for removing a committed DBE if there were no additional DBEs submitted at the time of bid to cover the same amount of work as the DBE that was terminated.

If a replacement DBE is not found that can perform at least the same amount of work as the terminated DBE, the Contractor shall submit a good faith effort documenting the steps taken. Such documentation shall include, but not be limited to, the following:

- (1) Copies of written notification to DBEs that their interest is solicited in contracting the work defaulted by the previous DBE or in subcontracting other items of work in the contract.
- (2) Efforts to negotiate with DBEs for specific subbids including, at a minimum:
 - (a) The names, addresses, and telephone numbers of DBEs who were contacted.
 - (b) A description of the information provided to DBEs regarding the plans and specifications for portions of the work to be performed.
- (3) A list of reasons why DBE quotes were not accepted.
- (4) Efforts made to assist the DBEs contacted, if needed, in obtaining bonding or insurance required by the Contractor.

(B) Decertification Replacement

- (1) When a committed DBE is decertified by the Department after the SAF (*Subcontract Approval Form*) has been received by the Department, the Department will not require the Contractor to solicit replacement DBE participation equal to the remaining work to be performed by the decertified firm. The participation equal to the remaining work performed by the decertified firm will count toward the contract goal requirement.
- (2) When a committed DBE is decertified prior to the Department receiving the SAF (*Subcontract Approval Form*) for the named DBE firm, the Contractor shall take all necessary and reasonable steps to replace the DBE subcontractor with another DBE subcontractor to perform at least the same amount of work to meet the DBE goal requirement. If a DBE firm is not found to do the same amount of work, a good faith effort must be submitted to NCDOT (see A herein for required documentation).

Changes in the Work

When the Engineer makes changes that result in the reduction or elimination of work to be performed by a committed DBE, the Contractor will not be required to seek additional participation. When the Engineer makes changes that result in additional work to be performed

by a DBE based upon the Contractor's commitment, the DBE shall participate in additional work to the same extent as the DBE participated in the original contract work.

When the Engineer makes changes that result in extra work, which has more than a minimal impact on the contract amount, the Contractor shall seek additional participation by DBEs unless otherwise approved by the Engineer.

When the Engineer makes changes that result in an alteration of plans or details of construction, and a portion or all of the work had been expected to be performed by a committed DBE, the Contractor shall seek participation by DBEs unless otherwise approved by the Engineer.

When the Contractor requests changes in the work that result in the reduction or elimination of work that the Contractor committed to be performed by a DBE, the Contractor shall seek additional participation by DBEs equal to the reduced DBE participation caused by the changes.

Reports and Documentation

A SAF (*Subcontract Approval Form*) shall be submitted for all work which is to be performed by a DBE subcontractor. The Department reserves the right to require copies of actual subcontract agreements involving DBE subcontractors.

When using transportation services to meet the contract commitment, the Contractor shall submit a proposed trucking plan in addition to the SAF. The plan shall be submitted prior to beginning construction on the project. The plan shall include the names of all trucking firms proposed for use, their certification type(s), the number of trucks owned by the firm, as well as the individual truck identification numbers, and the line item(s) being performed.

Within 30 calendar days of entering into an agreement with a DBE for materials, supplies or services, not otherwise documented by the SAF as specified above, the Contractor shall furnish the Engineer a copy of the agreement. The documentation shall also indicate the percentage (60% or 100%) of expenditures claimed for DBE credit.

Reporting Disadvantaged Business Enterprise Participation

The Contractor shall provide the Engineer with an accounting of payments made to all DBE firms, including material suppliers and contractors at all levels (prime, subcontractor, or second tier subcontractor). This accounting shall be furnished to the Engineer for any given month by the end of the following month. Failure to submit this information accordingly may result in the following action:

- (A) Withholding of money due in the next partial pay estimate; or
- (B) Removal of an approved contractor from the prequalified bidders' list or the removal of other entities from the approved subcontractors list.

While each contractor (prime, subcontractor, 2nd tier subcontractor) is responsible for accurate accounting of payments to DBEs, it shall be the prime contractor's responsibility to report all

monthly and final payment information in the correct reporting manner.

Failure on the part of the Contractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from further bidding until the required information is submitted.

Failure on the part of any subcontractor to submit the required information in the time frame specified may result in the disqualification of that contractor and any affiliate companies from being approved for work on future DOT projects until the required information is submitted.

Contractors reporting transportation services provided by non-DBE lessees shall evaluate the value of services provided during the month of the reporting period only.

At any time, the Engineer can request written verification of subcontractor payments.

The Contractor shall report the accounting of payments through the Department's DBE Payment Tracking System.

Failure to Meet Contract Requirements

Failure to meet contract requirements in accordance with Subarticle 102-15(J) of the *2012 Standard Specifications* may be cause to disqualify the Contractor.

CERTIFICATION FOR FEDERAL-AID CONTRACTS:

(3-21-90)

SP1 G85

The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:

- (A) No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
- (B) If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, *Disclosure Form to Report Lobbying*, in accordance with its instructions.

This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by *Section 1352, Title 31, U.S. Code*. Any person who

fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.

The prospective participant also agrees by submitting his or her bid or proposal that he or she shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such subrecipients shall certify and disclose accordingly.

U.S. DEPARTMENT OF TRANSPORTATION HOTLINE:

(11-22-94)

SP1 G100

To report bid rigging activities call: **1-800-424-9071**

The U.S. Department of Transportation (DOT) operates the above toll-free *hotline* Monday through Friday, 8:00 a.m. to 5:00 p.m. eastern time. Anyone with knowledge of possible bid rigging, bidder collusion, or other fraudulent activities should use the *hotline* to report such activities.

The *hotline* is part of the DOT's continuing effort to identify and investigate highway construction contract fraud and abuse is operated under the direction of the DOT Inspector General. All information will be treated confidentially and caller anonymity will be respected.

CARGO PREFERENCE ACT:

(2-16-16)

Privately owned United States-flag commercial vessels transporting cargoes are subject to the Cargo Preference Act (CPA) of 1954 requirements and regulations found in 46 CFR 381.7. Contractors are directed to clause (b) of 46 CFR 381.7 as follows:

- (b) Contractor and Subcontractor Clauses. "Use of United States-flag vessels: The contractor agrees-

“(1) To utilize privately owned United States-flag commercial vessels to ship at least 50 percent of the gross tonnage (computed separately for dry bulk carriers, dry cargo liners, and tankers) involved, whenever shipping any equipment, material, or commodities pursuant to this contract, to the extent such vessels are available at fair and reasonable rates for United States-flag commercial vessels.

(2) To furnish within 20 days following the date of loading for shipments originating within the United States or within 30 working days following the date of loading for shipments originating outside the United States a legible copy of a rated, 'on-board' commercial ocean bill-of-lading in English for each shipment of cargo described in paragraph (b) (1) of this section to both the Contracting Officer (through the prime contractor in the case of subcontractor bills-of-lading) and to the Division of National Cargo, Office of Market Development, Maritime Administration, Washington, DC 20590.

(3) To insert the substance of the provisions of this clause in all subcontracts issued pursuant to this contract."

IRAN DIVESTMENT ACT:

(5-17-16)

SP01 G151

As a result of the Iran Divestment Act of 2015 (Act), Article 6E, N.C. General Statute § 147-86.55, the State Treasurer published the Final Divestment List (List) which includes the Final Divestment List-Iran, and the Parent and Subsidiary Guidance-Iran. These lists identify companies and persons engaged in investment activities in Iran and will be updated every 180 days. The List can be found at <https://www.nctreasurer.com/inside-the-department/OpenGovernment/Pages/Iran-Divestment-Act-Resources.aspx>

By submitting the Offer, the Contractor certifies that, as of the date of this bid, it is not on the then-current List created by the State Treasurer. The Contractor must notify the Department immediately if, at any time before the award of the contract, it is added to the List.

As an ongoing obligation, the Contractor must notify the Department immediately if, at any time during the contract term, it is added to the List. Consistent with § 147-86.59, the Contractor shall not contract with any person to perform a part of the work if, at the time the subcontract is signed, that person is on the then-current List.

During the term of the Contract, should the Department receive information that a person is in violation of the Act as stated above, the Department will offer the person an opportunity to respond and the Department will take action as appropriate and provided for by law, rule, or contract.

GIFTS FROM VENDORS AND CONTRACTORS:

(12-15-09)

107-1

SP1 G152

By Executive Order 24, issued by Governor Perdue, and *N.C.G.S. § 133-32*, it is unlawful for any vendor or contractor (i.e. architect, bidder, contractor, construction manager, design professional, engineer, landlord, offeror, seller, subcontractor, supplier, or vendor), to make gifts or to give favors to any State employee of the Governor's Cabinet Agencies (i.e. Administration, Commerce, Correction, Crime Control and Public Safety, Cultural Resources, Environment and Natural Resources, Health and Human Services, Juvenile Justice and Delinquency Prevention, Revenue, Transportation, and the Office of the Governor). This prohibition covers those vendors and contractors who:

- (A) Have a contract with a governmental agency; or
- (B) Have performed under such a contract within the past year; or
- (C) Anticipate bidding on such a contract in the future.

For additional information regarding the specific requirements and exemptions, vendors and contractors are encouraged to review Executive Order 24 and *N.C.G.S. § 133-32*.

Executive Order 24 also encouraged and invited other State Agencies to implement the requirements and prohibitions of the Executive Order to their agencies. Vendors and contractors should contact other State Agencies to determine if those agencies have adopted Executive Order 24.

LIABILITY INSURANCE:

(5-20-14)

SP1 G160

Revise the *2012 Standard Specifications* as follows:

Page 1-60, Article 107-15 LIABILITY INSURANCE, line 16, add the following as the second sentence of the third paragraph:

Prior to beginning services, all contractors shall provide proof of coverage issued by a workers' compensation insurance carrier, or a certificate of compliance issued by the Department of Insurance for self-insured subcontractors, irrespective of whether having regularly in service fewer than three employees.

EMPLOYMENT:

(11-15-11) (Rev. 1-17-12)

108, 102

SP1 G184

Revise the *2012 Standard Specifications* as follows:

Page 1-20, Subarticle 102-15(O), delete and replace with the following:

(O) Failure to restrict a former Department employee as prohibited by Article 108-5.

Page 1-65, Article 108-5 Character of Workmen, Methods, and Equipment, line 32, delete all of line 32, the first sentence of the second paragraph and the first word of the second sentence of the second paragraph.

STATE HIGHWAY ADMINISTRATOR TITLE CHANGE:

(9-18-12)

SP1 G185

Revise the *2012 Standard Specifications* as follows:

Replace all references to "State Highway Administrator" with "Chief Engineer".

STANDARD SPECIAL PROVISIONS

AVAILABILITY OF FUNDS – TERMINATION OF CONTRACTS

(5-20-08)

Z-2

General Statute 143C-6-11. (h) Highway Appropriation is hereby incorporated verbatim in this contract as follows:

(h) Amounts Encumbered. – Transportation project appropriations may be encumbered in the amount of allotments made to the Department of Transportation by the Director for the estimated payments for transportation project contract work to be performed in the appropriation fiscal year. The allotments shall be multiyear allotments and shall be based on estimated revenues and shall be subject to the maximum contract authority contained in *General Statute 143C-6-11(c)*. Payment for transportation project work performed pursuant to contract in any fiscal year other than the current fiscal year is subject to appropriations by the General Assembly. Transportation project contracts shall contain a schedule of estimated completion progress, and any acceleration of this progress shall be subject to the approval of the Department of Transportation provided funds are available. The State reserves the right to terminate or suspend any transportation project contract, and any transportation project contract shall be so terminated or suspended if funds will not be available for payment of the work to be performed during that fiscal year pursuant to the contract. In the event of termination of any contract, the contractor shall be given a written notice of termination at least 60 days before completion of scheduled work for which funds are available. In the event of termination, the contractor shall be paid for the work already performed in accordance with the contract specifications.

Payment will be made on any contract terminated pursuant to the special provision in accordance with Subarticle 108-13(E) of the *2012 Standard Specifications*.

MINIMUM WAGES

(7-21-09)

Z-5

FEDERAL: The Fair Labor Standards Act provides that with certain exceptions every employer shall pay wages at the rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

STATE: The North Carolina Minimum Wage Act provides that every employer shall pay to each of his employees, wages at a rate of not less than SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all skilled labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all intermediate labor employed on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

The minimum wage paid to all unskilled labor on this contract shall be SEVEN DOLLARS AND TWENTY FIVE CENTS (\$7.25) per hour.

This determination of the intent of the application of this act to the contract on this project is the responsibility of the Contractor.

The Contractor shall have no claim against the Department of Transportation for any changes in the minimum wage laws, Federal or State. It is the responsibility of the Contractor to keep fully informed of all Federal and State Laws affecting his contract.

DEPARTMENT OF LABOR REQUIREMENTS

- The location of the contract performance is not known when bids are solicited. Therefore, Davis-Bacon wage determinations are not required for this contract.
- Contractor must pay the current minimum wage required by law.
- Contractors must submit weekly payroll statements to the Department.
- Contractor must comply with all other DOL labor standards.

AWARD OF CONTRACT

(6-28-77)(Rev 2/16/2016)

Z-6

“The North Carolina Department of Transportation, in accordance with the provisions of *Title VI of the Civil Rights Act of 1964* (78 Stat. 252) and the Regulations of the Department of Transportation (49 C.F.R., Part 21), issued pursuant to such act, hereby notifies all bidders that it will affirmatively insure that the contract entered into pursuant to this advertisement will be awarded to the lowest responsible bidder without discrimination on the ground of race, color, or national origin”.

TITLE VI AND NONDISCRIMINATION

I. Title VI Assurance

During the performance of this contract, the contractor, for itself, its assignees and successors in interest (hereinafter referred to as the "contractor") agrees as follows:

(1) Compliance with Regulations: The contractor shall comply with the Regulation relative to nondiscrimination in Federally-assisted programs of the Department of Transportation (hereinafter, "DOT") Title 49, Code of Federal Regulations, Part 21, as they may be amended from time to time, (hereinafter referred to as the Regulations), which are herein incorporated by reference and made a part of this contract.

(2) Nondiscrimination: The Contractor, with regard to the work performed by it during the contract, shall not discriminate on the grounds of race, color, or national origin in the selection and retention of subcontractors, including procurements of materials and leases of equipment. The contractor shall not participate either directly or indirectly in the discrimination prohibited by section 21.5 of the Regulations, including employment practices when the contract covers a program set forth in Appendix B of the Regulations.

(3) Solicitations for Subcontractors, Including Procurements of Materials and Equipment:

In all solicitations either by competitive bidding or negotiation made by the contractor for work to be performed under a subcontract, including procurements of materials or leases of equipment, each potential subcontractor or supplier shall be notified by the contractor of the contractor's obligations under this contract and the Regulations relative to nondiscrimination on the grounds of race, color, or national origin.

(4) Information and Reports: The contractor shall provide all information and reports required by the Regulations or directives issued pursuant thereto, and shall permit access to its books, records, accounts, other sources of information, and its facilities as may be determined by the North Carolina Department of Transportation (NCDOT) or the Federal Highway Administration (FHWA) to be pertinent to ascertain compliance with such Regulations, orders and instructions. Where any information required of a contractor is in the exclusive possession of another who fails or refuses to furnish this information the contractor shall so certify to the NCDOT, or the FHWA as appropriate, and shall set forth what efforts it has made to obtain the information.

(5) Sanctions for Noncompliance: In the event of the contractor's noncompliance with the nondiscrimination provisions of this contract, the NCDOT shall impose such contract sanctions as it or the FHWA may determine to be appropriate, including, but not limited to:

- (a) Withholding of payments to the contractor under the contract until the contractor complies, and/or
- (b) Cancellation, termination or suspension of the contract, in whole or in part.

(6) Incorporation of Provisions: The contractor shall include the provisions of paragraphs (1) through (6) in every subcontract, including procurements of materials and leases of equipment, unless exempt by the Regulations, or directives issued pursuant thereto.

The contractor shall take such action with respect to any subcontractor procurement as the NCDOT or the FHWA may direct as a means of enforcing such provisions including sanctions for noncompliance: provided, however, that, in the event a contractor becomes involved in, or is threatened with, litigation with a subcontractor or supplier as a result of such direction, the contractor may request the NCDOT to enter into such litigation to protect the interests of the NCDOT, and, in addition, the contractor may request the United States to enter into such litigation to protect the interests of the United States.

II. Title VI Nondiscrimination Program

Title VI of the 1964 Civil Rights Act, 42 U.S.C. 2000d, provides that: "No person in the United States shall, on the grounds of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." The broader application of nondiscrimination law is found in other statutes, executive orders, and regulations (see Section III, Pertinent Nondiscrimination Authorities), which provide additional protections based on age, sex, disability and religion. In addition, the 1987 Civil Rights Restoration Act extends nondiscrimination coverage to all programs and activities of federal-aid recipients and contractors, including those that are not federally-funded.

Nondiscrimination Assurance

The North Carolina Department of Transportation (NCDOT) hereby gives assurance that no person shall on the ground of race, color, national origin, sex, age, and disability, be excluded from participation in, be denied the benefits of, or be otherwise subjected to discrimination under any program or activity conducted by the recipient, as provided by Title VI of the Civil Rights Act of 1964, the Civil Rights Restoration Act of 1987, and any other related Civil Rights authorities, whether those programs and activities are federally funded or not.

Obligation

During the performance of this contract, the Contractor and its subcontractors are responsible for complying with NCDOT's Title VI Program. The Contractor must ensure that NCDOT's Notice of Nondiscrimination is posted in conspicuous locations accessible to all employees and subcontractors on the jobsite, along with the Contractor's own Equal Employment Opportunity (EEO) Policy Statement. The Contractor shall physically incorporate this "**TITLE VI AND NONDISCRIMINATION**" language, in its entirety, into all its subcontracts on federally-assisted and state-funded NCDOT-owned projects, and ensure its inclusion by subcontractors into all subsequent lower tier subcontracts. The Contractor and its subcontractors shall also physically incorporate the **FHWA-1273**, in its entirety, into all subcontracts and subsequent lower tier subcontracts on Federal-aid highway construction contracts only. The Contractor is also responsible for making its subcontractors aware of NCDOT's Discrimination Complaints Process, as follows:

FILING OF COMPLAINTS

1. **Applicability** – These complaint procedures apply to the beneficiaries of the NCDOT's programs, activities, and services, including, but not limited to, members of the public, contractors, subcontractors, consultants, and other sub-recipients of federal and state funds.
2. **Eligibility** – Any person or class of persons who believes he/she has been subjected to discrimination or retaliation prohibited by any of the Civil Rights authorities, based upon race, color, sex, age, national origin, or disability, may file a written complaint with NCDOT's Civil Rights office. The law prohibits intimidation or retaliation of any sort. The complaint may be filed by the affected individual or a representative, and must be in writing.
3. **Time Limits and Filing Options** – A complaint must be filed no later than 180 calendar days after the following:
 - The date of the alleged act of discrimination; or
 - The date when the person(s) became aware of the alleged discrimination; or
 - Where there has been a continuing course of conduct, the date on which that conduct was discontinued or the latest instance of the conduct.

Title VI and other discrimination complaints may be submitted to the following entities:

- **North Carolina Department of Transportation**, Office of Equal Opportunity & Workforce Services (EOWS), External Civil Rights Section, 1511 Mail Service Center, Raleigh, NC 27699-1511; 919-508-1808 or toll free 800-522-0453
- **US Department of Transportation**, Departmental Office of Civil Rights, External Civil Rights Programs Division, 1200 New Jersey Avenue, SE, Washington, DC 20590; 202-366-4070

Federal Highway Administration, North Carolina Division Office, 310 New Bern Avenue, Suite 410, Raleigh, NC 27601, 919-747-7010

Federal Highway Administration, Office of Civil Rights, 1200 New Jersey Avenue, SE, 8th Floor, E81-314, Washington, DC 20590, 202-366-0693 / 366-0752

Federal Transit Administration, Office of Civil Rights, ATTN: Title VI Program Coordinator, East Bldg. 5th Floor – TCR, 1200 New Jersey Avenue, SE, Washington, DC 20590

Federal Aviation Administration, Office of Civil Rights, 800 Independence Avenue, SW, Washington, DC 20591, 202-267-3258

- **US Department of Justice**, Special Litigation Section, Civil Rights Division, 950 Pennsylvania Avenue, NW, Washington, DC 20530, 202-514-6255 or toll free 877-218-5228

4. **Format for Complaints** – Complaints must be in **writing** and **signed** by the complainant(s) or a representative and include the complainant's name, address, and telephone number. Complaints received by fax or e-mail will be acknowledged and processed. Allegations received by telephone will be reduced to writing and provided to the complainant for confirmation or revision before processing. Complaints will be accepted in other languages including Braille.
5. **Discrimination Complaint Form** – Contact NCDOT EOWS at the phone number above to receive a full copy of the Discrimination Complaint Form and procedures.
6. **Complaint Basis** – Allegations must be based on issues involving race, color, national origin, sex, age, or disability. The term “basis” refers to the complainant's membership in a protected group category. Contact this office to receive a Discrimination Complaint Form.

Protected Categories	Definition	Examples	Applicable Statutes and Regulations	
			FHWA	FTA
Race	An individual belonging to one of the accepted racial groups; or the perception, based usually on physical characteristics that a person is a member of a racial group	Black/African American, Hispanic/Latino, Asian, American Indian/Alaska Native, Native Hawaiian/Pacific Islander, White	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; 23 CFR 200	Title VI of the Civil Rights Act of 1964; 49 CFR Part 21; Circular 4702.1B
Color	Color of skin, including shade of skin within a racial group	Black, White, brown, yellow, etc.		
National Origin	Place of birth. Citizenship is not a factor. Discrimination based on language or a person's accent is also covered.	Mexican, Cuban, Japanese, Vietnamese, Chinese		
Sex	Gender	Women and Men	1973 Federal-Aid Highway	Title IX of the Education

			Act	Amendments of 1972
Age	Persons of any age	21 year old person	Age Discrimination Act of 1975	
Disability	Physical or mental impairment, permanent or temporary, or perceived.	Blind, alcoholic, paraplegic, epileptic, diabetic, arthritic	Section 504 of the Rehabilitation Act of 1973; Americans with Disabilities Act of 1990	

III. Pertinent Nondiscrimination Authorities

During the performance of this contract, the contractor, for itself, its assignees, and successors in interest agrees to comply with the following non-discrimination statutes and authorities, including, but not limited to:

- Title VI of the Civil Rights Act of 1964 (42 U.S.C. § 2000d *et seq.*, 78 stat. 252), (prohibits discrimination on the basis of race, color, national origin); and 49 CFR Part 21.
- The Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, (42 U.S.C. § 4601), (prohibits unfair treatment of persons displaced or whose property has been acquired because of Federal or Federal-aid programs and projects);
- Federal-Aid Highway Act of 1973, (23 U.S.C. § 324 *et seq.*), (prohibits discrimination on the basis of sex);
- Section 504 of the Rehabilitation Act of 1973, (29 U.S.C. § 794 *et seq.*), as amended, (prohibits discrimination on the basis of disability); and 49 CFR Part 27;
- The Age Discrimination Act of 1975, as amended, (42 U.S.C. § 6101 *et seq.*), (prohibits discrimination on the basis of age);
- Airport and Airway Improvement Act of 1982, (49 USC § 471, Section 47123), as amended, (prohibits discrimination based on race, creed, color, national origin, or sex);
- The Civil Rights Restoration Act of 1987, (PL 100-209), (Broadened the scope, coverage and applicability of Title VI of the Civil Rights Act of 1964, The Age Discrimination Act of 1975 and Section 504 of the Rehabilitation Act of 1973, by expanding the definition of the terms “programs or activities” to include all of the programs or activities of the Federal-aid recipients, sub-recipients and contractors, whether such programs or activities are Federally funded or not);
- Titles II and III of the Americans with Disabilities Act, which prohibit discrimination on the basis of disability in the operation of public entities, public and private transportation systems, places of public accommodation, and certain testing entities (42 U.S.C. §§ 12131 – 12189) as implemented by Department of Transportation regulations at 49 C.F.R. parts 37 and 38;
- The Federal Aviation Administration’s Non-discrimination statute (49 U.S.C. § 47123) (prohibits discrimination on the basis of race, color, national origin, and sex);
- Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, which ensures discrimination against minority populations by discouraging programs, policies, and activities with disproportionately high and adverse human health or environmental effects on minority and low-income populations;

- Executive Order 13166, Improving Access to Services for Persons with Limited English Proficiency, and resulting agency guidance, national origin discrimination includes discrimination because of limited English proficiency (LEP). To ensure compliance with Title VI, you must take reasonable steps to ensure that LEP persons have meaningful access to your programs (70 Fed. Reg. at 74087 to 74100);
- Title IX of the Education Amendments of 1972, as amended, which prohibits you from discriminating because of sex in education programs or activities (20 U.S.C. 1681 et seq).
- Title VII of the Civil Rights Act of 1964 (42 U.S.C. § 2000e *et seq.*, Pub. L. 88-352), (prohibits employment discrimination on the basis of race, color, religion, sex, or national origin);
- 49 CFR Part 26, regulation to ensure nondiscrimination in the award and administration of DOT-assisted contracts in the Department's highway, transit, and airport financial assistance programs, as regards the use of Disadvantaged Business Enterprises (DBEs);
- Form FHWA-1273, "Required Contract Provisions," a collection of contract provisions and proposal notices that are generally applicable to *all Federal-aid construction projects* and must be made a part of, and physically incorporated into, *all federally-assisted contracts*, as well as appropriate subcontracts and purchase orders, particularly Sections II (Nondiscrimination) and III (Nonsegregated Facilities).

MINORITY AND FEMALE EMPLOYMENT REQUIREMENTS

Z-7

NOTICE OF REQUIREMENTS FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY (*EXECUTIVE NUMBER 11246*)

1. The goals and timetables for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, see as shown on the attached sheet entitled "Employment Goals for Minority and Female participation".

These goals are applicable to all the Contractor's construction work (whether or not it is Federal or federally assisted) performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for such geographical area where the work is actually performed. With regard to this second area, the Contractor also is subject to the goals for both its federally involved and nonfederally involved construction.

The Contractor's compliance with the Executive Order and the regulations in *41 CFR Part 60-4* shall be based on its implementation of the Equal Opportunity Clause, specific affirmative action obligations required by the specifications set forth in *41 CFR 60-4.3(a)*, and its effort to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade and the Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor or from project to project or the sole purpose of meeting the Contractor's goals shall be a violation of the contract, the

executive Order and the regulations in 41 CFR Part 60-4. Compliance with the goals will be measured against the total work hours performed.

2. As used in this Notice and in the contract resulting from this solicitation, the “covered area” is the county or counties shown on the cover sheet of the proposal form and contract.

Employment Goals for Minority and Female Participation

Economic Areas

Area 023 29.7%

Bertie County
Camden County
Chowan County
Gates County
Hertford County
Pasquotank County
Perquimans County

Area 024 31.7%

Beaufort County
Carteret County
Craven County
Dare County
Edgecombe County
Green County
Halifax County
Hyde County
Jones County
Lenoir County
Martin County
Nash County
Northampton County
Pamlico County
Pitt County
Tyrrell County
Washington County
Wayne County
Wilson County

Area 025 23.5%

Columbus County
Duplin County
Onslow County
Pender County

Area 026 33.5%

Bladen County
Hoke County
Richmond County
Robeson County
Sampson County
Scotland County

Area 027 24.7%

Chatham County
Franklin County
Granville County
Harnett County
Johnston County
Lee County
Person County
Vance County
Warren County

Area 028 15.5%

Alleghany County
Ashe County
Caswell County
Davie County
Montgomery County
Moore County
Rockingham County
Surry County
Watauga County
Wilkes County

Area 029 15.7%

Alexander County
Anson County
Burke County
Cabarrus County
Caldwell County
Catawba County
Cleveland County
Iredell County
Lincoln County
Polk County
Rowan County
Rutherford County
Stanly County

Area 0480 8.5%

Buncombe County
Madison County

Area 030 6.3%

Avery County
Cherokee County
Clay County
Graham County
Haywood County
Henderson County
Jackson County
McDowell County
Macon County
Mitchell County
Swain County
Transylvania County
Yancey County

SMSA Areas

Area 5720 26.6%

Currituck County

Area 9200 20.7%

Brunswick County

New Hanover County

Area 2560 24.2%

Cumberland County

Area 6640 22.8%

Durham County

Orange County

Wake County

Area 1300 16.2%

Alamance County

Area 3120 16.4%

Davidson County

Forsyth County

Guilford County

Randolph County

Stokes County

Yadkin County

Area 1520 18.3%

Gaston County

Mecklenburg County

Union County

GOALS FOR FEMALE

Participation in Each Trade

(Statewide) 6.9%

REQUIRED CONTRACT PROVISIONS FEDERAL AID CONSTRUCTION CONTRACTS

FHWA - 1273 Electronic Version - May 1, 2012

Z-8

- I. General
- II. Nondiscrimination
- III. Nonsegregated Facilities
- IV. Davis-Bacon and Related Act Provisions
- V. Contract Work Hours and Safety Standards Act Provisions
- VI. Subletting or Assigning the Contract
- VII. Safety: Accident Prevention
- VIII. False Statements Concerning Highway Projects
- IX. Implementation of Clean Air Act and Federal Water Pollution Control Act
- X. Compliance with Governmentwide Suspension and Debarment Requirements
- XI. Certification Regarding Use of Contract Funds for Lobbying

ATTACHMENTS

- A. Employment and Materials Preference for Appalachian Development Highway System or Appalachian Local Access Road Contracts (included in Appalachian contracts only)

I. GENERAL

1. Form FHWA-1273 must be physically incorporated in each construction contract funded under Title 23 (excluding emergency contracts solely intended for debris removal). The contractor (or subcontractor) must insert this form in each subcontract and further require its inclusion in all lower tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services).
The applicable requirements of Form FHWA-1273 are incorporated by reference for work done under any purchase order, rental agreement or agreement for other services. The prime contractor shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Form FHWA-1273 must be included in all Federal-aid design-build contracts, in all subcontracts and in lower tier subcontracts (excluding subcontracts for design services, purchase orders, rental agreements and other agreements for supplies or services). The design-builder shall be responsible for compliance by any subcontractor, lower-tier subcontractor or service provider.
Contracting agencies may reference Form FHWA-1273 in bid proposal or request for proposal documents, however, the Form FHWA-1273 must be physically incorporated (not referenced) in all contracts, subcontracts and lower-tier subcontracts (excluding purchase orders, rental agreements and other agreements for supplies or services related to a construction contract).
2. Subject to the applicability criteria noted in the following sections, these contract provisions shall apply to all work performed on the contract by the contractor's own organization and with the assistance of workers under the contractor's immediate superintendence and to all work performed on the contract by piecework, station work, or by subcontract.
3. A breach of any of the stipulations contained in these Required Contract Provisions may be sufficient grounds for withholding of progress payments, withholding of final payment, termination of the contract, suspension / debarment or any other action determined to be appropriate by the contracting agency and FHWA.
4. Selection of Labor: During the performance of this contract, the contractor shall not use convict labor for any purpose within the limits of a construction project on a Federal-aid highway unless it is labor performed by convicts who are on parole, supervised release, or probation. The term Federal-aid highway does not include roadways functionally classified as local roads or rural minor collectors.

II. NONDISCRIMINATION

The provisions of this section related to 23 CFR Part 230 are applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more. The provisions of 23 CFR Part 230 are not applicable to material supply, engineering, or architectural service contracts.

In addition, the contractor and all subcontractors must comply with the following policies: Executive Order 11246, 41 CFR 60, 29 CFR 1625-1627, Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The contractor and all subcontractors must comply with: the requirements of the Equal Opportunity Clause in 41 CFR 60-1.4(b) and, for all construction contracts exceeding \$10,000, the Standard Federal Equal Employment Opportunity Construction Contract Specifications in 41 CFR 60-4.3.

Note: The U.S. Department of Labor has exclusive authority to determine compliance with Executive Order 11246 and the policies of the Secretary of Labor including 41 CFR 60, and 29 CFR 1625-1627. The contracting agency and the FHWA have the authority and the responsibility to ensure compliance with Title 23 USC Section 140, the Rehabilitation Act of 1973, as amended (29 USC 794), and Title VI of the Civil Rights Act of 1964, as amended, and related regulations including 49 CFR Parts 21, 26 and 27; and 23 CFR Parts 200, 230, and 633.

The following provision is adopted from 23 CFR 230, Appendix A, with appropriate revisions to conform to the U.S. Department of Labor (US DOL) and FHWA requirements.

1. **Equal Employment Opportunity:** Equal employment opportunity (EEO) requirements not to discriminate and to take affirmative action to assure equal opportunity as set forth under laws, executive orders, rules, regulations (28 CFR 35, 29 CFR 1630, 29 CFR 1625-1627, 41 CFR 60 and 49 CFR 27) and orders of the Secretary of Labor as modified by the provisions prescribed herein, and imposed pursuant to 23 U.S.C. 140 shall constitute the EEO and specific affirmative action standards for the contractor's project activities under this contract. The provisions of the Americans with Disabilities Act of 1990 (42 U.S.C. 12101 et seq.) set forth under 28 CFR 35 and 29 CFR 1630 are incorporated by reference in this contract. In the execution of this contract, the contractor agrees to comply with the following minimum specific requirement activities of EEO:
 - a. The contractor will work with the contracting agency and the Federal Government to ensure that it has made every good faith effort to provide

equal opportunity with respect to all of its terms and conditions of employment and in their review of activities under the contract.

- b. The contractor will accept as its operating policy the following statement:
"It is the policy of this Company to assure that applicants are employed, and that employees are treated during employment, without regard to their race, religion, sex, color, national origin, age or disability. Such action shall include: employment, upgrading, demotion, or transfer; recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship, pre-apprenticeship, and/or on-the-job training."
2. **EEO Officer:** The contractor will designate and make known to the contracting officers an EEO Officer who will have the responsibility for and must be capable of effectively administering and promoting an active EEO program and who must be assigned adequate authority and responsibility to do so.
3. **Dissemination of Policy:** All members of the contractor's staff who are authorized to hire, supervise, promote, and discharge employees, or who recommend such action, or who are substantially involved in such action, will be made fully cognizant of, and will implement, the contractor's EEO policy and contractual responsibilities to provide EEO in each grade and classification of employment. To ensure that the above agreement will be met, the following actions will be taken as a minimum:
 - a. Periodic meetings of supervisory and personnel office employees will be conducted before the start of work and then not less often than once every six months, at which time the contractor's EEO policy and its implementation will be reviewed and explained. The meetings will be conducted by the EEO Officer.
 - b. All new supervisory or personnel office employees will be given a thorough indoctrination by the EEO Officer, covering all major aspects of the contractor's EEO obligations within thirty days following their reporting for duty with the contractor.
 - c. All personnel who are engaged in direct recruitment for the project will be instructed by the EEO Officer in the contractor's procedures for locating and hiring minorities and women.
 - d. Notices and posters setting forth the contractor's EEO policy will be placed in areas readily accessible to employees, applicants for employment and potential employees.
 - e. The contractor's EEO policy and the procedures to implement such policy will be brought to the attention of employees by means of meetings, employee handbooks, or other appropriate means.
4. **Recruitment:** When advertising for employees, the contractor will include in all advertisements for employees the notation: "An Equal Opportunity Employer." All such advertisements will be placed in publications having a large circulation among minorities and women in the area from which the project work force would normally be derived.
 - a. The contractor will, unless precluded by a valid bargaining agreement, conduct systematic and direct recruitment through public and private employee referral sources likely to yield qualified minorities and women. To meet this requirement, the contractor will identify sources of potential minority group employees, and establish with such identified sources procedures whereby minority and women applicants may be referred to the contractor for employment consideration.
 - b. In the event the contractor has a valid bargaining agreement providing for exclusive hiring hall referrals, the contractor is expected to observe the provisions of that agreement to the extent that the system meets the contractor's compliance with EEO contract provisions. Where implementation of such an agreement has the effect of discriminating against minorities or women, or obligates the contractor to do the same, such implementation violates Federal nondiscrimination provisions.
 - c. The contractor will encourage its present employees to refer minorities and women as applicants for employment. Information and procedures with regard to referring such applicants will be discussed with employees.
5. **Personnel Actions:** Wages, working conditions, and employee benefits shall be established and administered, and personnel actions of every type, including hiring, upgrading, promotion, transfer, demotion, layoff, and termination, shall be taken without regard to race, color, religion, sex, national origin, age or disability. The following procedures shall be followed:
 - a. The contractor will conduct periodic inspections of project sites to insure that working conditions and employee facilities do not indicate discriminatory treatment of project site personnel.
 - b. The contractor will periodically evaluate the spread of wages paid within each classification to determine any evidence of discriminatory wage practices.
 - c. The contractor will periodically review selected personnel actions in depth to determine whether there is evidence of discrimination. Where evidence is found, the contractor will promptly take corrective action. If the review indicates that the discrimination may extend beyond the actions reviewed, such corrective action shall include all affected persons.
 - d. The contractor will promptly investigate all complaints of alleged discrimination made to the contractor in connection with its obligations under this contract, will attempt to resolve such complaints, and will take appropriate corrective action within a reasonable time. If the investigation indicates that the discrimination may affect persons other than the complainant, such corrective action shall include such other persons. Upon completion of each investigation, the contractor will inform every complainant of all of their avenues of appeal.
6. **Training and Promotion:**
 - a. The contractor will assist in locating, qualifying, and increasing the skills of minorities and women who are applicants for employment or current employees. Such efforts should be aimed at developing full journey level status employees in the type of trade or job classification involved.
 - b. Consistent with the contractor's work force requirements and as permissible under Federal and State regulations, the contractor shall make full use of training programs, i.e., apprenticeship, and on-the-job training programs for the geographical area of contract performance. In the event a special provision for training is provided under this contract, this subparagraph will be superseded as indicated in the special provision. The contracting agency may reserve training positions for persons who receive welfare assistance in accordance with 23 U.S.C. 140(a).
 - c. The contractor will advise employees and applicants for employment of available training programs and entrance requirements for each.
 - d. The contractor will periodically review the training and promotion potential of employees who are minorities and women and will encourage eligible employees to apply for such training and promotion.
7. **Unions:** If the contractor relies in whole or in part upon unions as a source of employees, the contractor will use good faith efforts to obtain the cooperation of such unions to increase opportunities for minorities and women. Actions by the contractor, either directly or through a contractor's association acting as agent, will include the procedures set forth below:
 - a. The contractor will use good faith efforts to develop, in cooperation with the unions, joint training programs aimed toward qualifying more minorities and women for membership in the unions and increasing the skills of minorities and women so that they may qualify for higher paying employment.
 - b. The contractor will use good faith efforts to incorporate an EEO clause into each union agreement to the end that such union will be contractually

- bound to refer applicants without regard to their race, color, religion, sex, national origin, age or disability.
- c. The contractor is to obtain information as to the referral practices and policies of the labor union except that to the extent such information is within the exclusive possession of the labor union and such labor union refuses to furnish such information to the contractor, the contractor shall so certify to the contracting agency and shall set forth what efforts have been made to obtain such information.
 - d. In the event the union is unable to provide the contractor with a reasonable flow of referrals within the time limit set forth in the collective bargaining agreement, the contractor will, through independent recruitment efforts, fill the employment vacancies without regard to race, color, religion, sex, national origin, age or disability; making full efforts to obtain qualified and/or qualifiable minorities and women. The failure of a union to provide sufficient referrals (even though it is obligated to provide exclusive referrals under the terms of a collective bargaining agreement) does not relieve the contractor from the requirements of this paragraph. In the event the union referral practice prevents the contractor from meeting the obligations pursuant to Executive Order 11246, as amended, and these special provisions, such contractor shall immediately notify the contracting agency.
8. **Reasonable Accommodation for Applicants / Employees with Disabilities:** The contractor must be familiar with the requirements for and comply with the Americans with Disabilities Act and all rules and regulations established there under. Employers must provide reasonable accommodation in all employment activities unless to do so would cause an undue hardship.
 9. **Selection of Subcontractors, Procurement of Materials and Leasing of Equipment:** The contractor shall not discriminate on the grounds of race, color, religion, sex, national origin, age or disability in the selection and retention of subcontractors, including procurement of materials and leases of equipment. The contractor shall take all necessary and reasonable steps to ensure nondiscrimination in the administration of this contract.
 - a. The contractor shall notify all potential subcontractors and suppliers and lessors of their EEO obligations under this contract.
 - b. The contractor will use good faith efforts to ensure subcontractor compliance with their EEO obligations.
 10. **Assurance Required by 49 CFR 26.13(b):**
 - a. The requirements of 49 CFR Part 26 and the State DOT's U.S. DOT-approved DBE program are incorporated by reference.
 - b. The contractor or subcontractor shall not discriminate on the basis of race, color, national origin, or sex in the performance of this contract. The contractor shall carry out applicable requirements of 49 CFR Part 26 in the award and administration of DOT-assisted contracts. Failure by the contractor to carry out these requirements is a material breach of this contract, which may result in the termination of this contract or such other remedy as the contracting agency deems appropriate.
 11. **Records and Reports:** The contractor shall keep such records as necessary to document compliance with the EEO requirements. Such records shall be retained for a period of three years following the date of the final payment to the contractor for all contract work and shall be available at reasonable times and places for inspection by authorized representatives of the contracting agency and the FHWA.
 - a. The records kept by the contractor shall document the following:
 - (1) The number and work hours of minority and non-minority group members and women employed in each work classification on the project;
 - (2) The progress and efforts being made in cooperation with unions, when applicable, to increase employment opportunities for minorities and women; and
 - (3) The progress and efforts being made in locating, hiring, training, qualifying, and upgrading minorities and women;
 - b. The contractors and subcontractors will submit an annual report to the contracting agency each July for the duration of the project, indicating the number of minority, women, and non-minority group employees currently engaged in each work classification required by the contract work. This information is to be reported on Form FHWA-1391. The staffing data should represent the project work force on board in all or any part of the last payroll period preceding the end of July. If on-the-job training is being required by special provision, the contractor will be required to collect and report training data. The employment data should reflect the work force on board during all or any part of the last payroll period preceding the end of July.

III. NONSEGREGATED FACILITIES

This provision is applicable to all Federal-aid construction contracts and to all related construction subcontracts of \$10,000 or more.

The contractor must ensure that facilities provided for employees are provided in such a manner that segregation on the basis of race, color, religion, sex, or national origin cannot result. The contractor may neither require such segregated use by written or oral policies nor tolerate such use by employee custom. The contractor's obligation extends further to ensure that its employees are not assigned to perform their services at any location, under the contractor's control, where the facilities are segregated. The term "facilities" includes waiting rooms, work areas, restaurants and other eating areas, time clocks, restrooms, washrooms, locker rooms, and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing provided for employees. The contractor shall provide separate or single-user restrooms and necessary dressing or sleeping areas to assure privacy between sexes.

IV. DAVIS-BACON AND RELATED ACT PROVISIONS

This section is applicable to all Federal-aid construction projects exceeding \$2,000 and to all related subcontracts and lower-tier subcontracts (regardless of subcontract size). The requirements apply to all projects located within the right-of-way of a roadway that is functionally classified as Federal-aid highway. This excludes roadways functionally classified as local roads or rural minor collectors, which are exempt. Contracting agencies may elect to apply these requirements to other projects.

The following provisions are from the U.S. Department of Labor regulations in 29 CFR 5.5 "Contract provisions and related matters" with minor revisions to conform to the FHWA-1273 format and FHWA program requirements.

1. Minimum wages

- a. All laborers and mechanics employed or working upon the site of the work, will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR part 3)), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the contractor and such laborers and mechanics.

Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph 1.d. of this section; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such weekly period. Such laborers and

mechanics shall be paid the appropriate wage rate and fringe benefits on the wage determination for the classification of work actually performed, without regard to skill, except as provided in 29 CFR 5.5(a)(4). Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein: Provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classification and wage rates conformed under paragraph 1.b. of this section) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

- b. (1) The contracting officer shall require that any class of laborers or mechanics, including helpers, which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The contracting officer shall approve an additional classification and wage rate and fringe benefits therefore only when the following criteria have been met:
 - (i) The work to be performed by the classification requested is not performed by a classification in the wage determination; and
 - (ii) The classification is utilized in the area by the construction industry; and
 - (iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.
 - (2) If the contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the contracting officer agree on the classification and wage rate (including the amount designated for fringe benefits where appropriate), a report of the action taken shall be sent by the contracting officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator, or an authorized representative, will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (3) In the event the contractor, the laborers or mechanics to be employed in the classification or their representatives, and the contracting officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the contracting officer shall refer the questions, including the views of all interested parties and the recommendation of the contracting officer, to the Wage and Hour Administrator for determination. The Wage and Hour Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the contracting officer or will notify the contracting officer within the 30-day period that additional time is necessary.
 - (4) The wage rate (including fringe benefits where appropriate) determined pursuant to paragraphs 1.b.(2) or 1.b.(3) of this section, shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.
 - c. Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.
 - d. If the contractor does not make payments to a trustee or other third person, the contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program, Provided, That the Secretary of Labor has found, upon the written request of the contractor, that the applicable standards of the Davis-Bacon Act have been met. The Secretary of Labor may require the contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.
2. **Withholding.** The contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the contractor under this contract, or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to Davis-Bacon prevailing wage requirements, which is held by the same prime contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the contracting agency may, after written notice to the contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.
3. **Payrolls and basic records**
- a. Payrolls and basic records relating thereto shall be maintained by the contractor during the course of the work and preserved for a period of three years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis-Bacon Act), daily and weekly number of hours worked, deductions made and actual wages paid. Whenever the Secretary of Labor has found under 29 CFR 5.5(a)(1)(iv) that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis-Bacon Act, the contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.
 - b. (1) The contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the contracting agency. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under 29 CFR 5.5(a)(3)(i), except that full social security numbers and home addresses shall not be included on weekly transmittals. Instead the payrolls shall only need to include an individually identifying number for each employee (e.g., the last four digits of the employee's social security number). The required weekly payroll information may be submitted in any form desired. Optional Form WH-347 is available for this purpose from the Wage and Hour Division Web site at <http://www.dol.gov/esa/whd/forms/wh347instr.htm> or its successor site. The prime contractor is responsible for the submission of copies of payrolls by all subcontractors. Contractors and subcontractors shall maintain the full social security number and current address of each covered worker, and shall provide them upon request to the contracting agency for transmission to the State DOT, the FHWA or the Wage and Hour Division of the Department of Labor for purposes of an investigation or audit of compliance with prevailing wage requirements. It is not a violation of this section for a prime contractor to require a subcontractor to provide addresses and social security numbers to the prime contractor for its own records, without weekly submission to the contracting agency.

- (2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify the following:
 - (i) That the payroll for the payroll period contains the information required to be provided under §5.5 (a)(3)(ii) of Regulations, 29 CFR part 5, the appropriate information is being maintained under §5.5 (a)(3)(i) of Regulations, 29 CFR part 5, and that such information is correct and complete;
 - (ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in Regulations, 29 CFR part 3;
 - (iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.
 - (3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by paragraph 3.b.(2) of this section.
 - (4) The falsification of any of the above certifications may subject the contractor or subcontractor to civil or criminal prosecution under section 1001 of title 18 and section 231 of title 31 of the United States Code.
- c. The contractor or subcontractor shall make the records required under paragraph 3.a. of this section available for inspection, copying, or transcription by authorized representatives of the contracting agency, the State DOT, the FHWA, or the Department of Labor, and shall permit such representatives to interview employees during working hours on the job. If the contractor or subcontractor fails to submit the required records or to make them available, the FHWA may, after written notice to the contractor, the contracting agency or the State DOT, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.
4. **Apprentices and trainees**
- a. Apprentices (programs of the USDOL). Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Office of Apprenticeship Training, Employer and Labor Services, or with a State Apprenticeship Agency recognized by the Office, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Office of Apprenticeship Training, Employer and Labor Services or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice.
- The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated above, shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the contractor's or subcontractor's registered program shall be observed.
- Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeymen hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination.
- In the event the Office of Apprenticeship Training, Employer and Labor Services, or a State Apprenticeship Agency recognized by the Office, withdraws approval of an apprenticeship program, the contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- b. Trainees (programs of the USDOL). Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration.
- The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration.
- Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed on the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate on the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate on the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed.
- In the event the Employment and Training Administration withdraws approval of a training program, the contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is approved.
- c. Equal employment opportunity. The utilization of apprentices, trainees and journeymen under this part shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR part 30.
- d. Apprentices and Trainees (programs of the U.S. DOT). Apprentices and trainees working under apprenticeship and skill training programs which have been certified by the Secretary of Transportation as promoting EEO in connection with Federal-aid highway construction programs are not subject to the requirements of paragraph 4 of this Section IV. The straight time hourly wage rates for apprentices and trainees under such programs will be established by the particular programs. The ratio of apprentices and trainees to journeymen shall not be greater than permitted by the terms of the particular program.
5. **Compliance with Copeland Act requirements.** The contractor shall comply with the requirements of 29 CFR part 3, which are incorporated by reference in this contract.
6. **Subcontracts.** The contractor or subcontractor shall insert Form FHWA-1273 in any subcontracts and also require the subcontractors to include Form FHWA-1273 in any lower tier subcontracts. The prime contractor shall be responsible for the compliance by any subcontractor or lower tier

subcontractor with all the contract clauses in 29 CFR 5.5.

7. **Contract termination:** debarment. A breach of the contract clauses in 29 CFR 5.5 may be grounds for termination of the contract, and for debarment as a contractor and a subcontractor as provided in 29 CFR 5.12.
8. **Compliance with Davis-Bacon and Related Act requirements.** All rulings and interpretations of the Davis-Bacon and Related Acts contained in 29 CFR parts 1, 3, and 5 are herein incorporated by reference in this contract.
9. **Disputes concerning labor standards.** Disputes arising out of the labor standards provisions of this contract shall not be subject to the general disputes clause of this contract. Such disputes shall be resolved in accordance with the procedures of the Department of Labor set forth in 29 CFR parts 5, 6, and 7. Disputes within the meaning of this clause include disputes between the contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.
10. **Certification of eligibility.**
 - a. By entering into this contract, the contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - b. No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis-Bacon Act or 29 CFR 5.12(a)(1).
 - c. The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

V. CONTRACT WORK HOURS AND SAFETY STANDARDS ACT

The following clauses apply to any Federal-aid construction contract in an amount in excess of \$100,000 and subject to the overtime provisions of the Contract Work Hours and Safety Standards Act. These clauses shall be inserted in addition to the clauses required by 29 CFR 5.5(a) or 29 CFR 4.6. As used in this paragraph, the terms laborers and mechanics include watchmen and guards.

1. **Overtime requirements.** No contractor or subcontractor contracting for any part of the contract work which may require or involve the employment of laborers or mechanics shall require or permit any such laborer or mechanic in any workweek in which he or she is employed on such work to work in excess of forty hours in such workweek unless such laborer or mechanic receives compensation at a rate not less than one and one-half times the basic rate of pay for all hours worked in excess of forty hours in such workweek.
2. **Violation; liability for unpaid wages; liquidated damages.** In the event of any violation of the clause set forth in paragraph (1.) of this section, the contractor and any subcontractor responsible therefor shall be liable for the unpaid wages. In addition, such contractor and subcontractor shall be liable to the United States (in the case of work done under contract for the District of Columbia or a territory, to such District or to such territory), for liquidated damages. Such liquidated damages shall be computed with respect to each individual laborer or mechanic, including watchmen and guards, employed in violation of the clause set forth in paragraph (1.) of this section, in the sum of \$10 for each calendar day on which such individual was required or permitted to work in excess of the standard workweek of forty hours without payment of the overtime wages required by the clause set forth in paragraph (1.) of this section.
3. **Withholding for unpaid wages and liquidated damages.** The FHWA or the contracting agency shall upon its own action or upon written request of an authorized representative of the Department of Labor withhold or cause to be withheld, from any moneys payable on account of work performed by the contractor or subcontractor under any such contract or any other Federal contract with the same prime contractor, or any other federally-assisted contract subject to the Contract Work Hours and Safety Standards Act, which is held by the same prime contractor, such sums as may be determined to be necessary to satisfy any liabilities of such contractor or subcontractor for unpaid wages and liquidated damages as provided in the clause set forth in paragraph (2.) of this section.
4. **Subcontracts.** The contractor or subcontractor shall insert in any subcontracts the clauses set forth in paragraph (1.) through (4.) of this section and also a clause requiring the subcontractors to include these clauses in any lower tier subcontracts. The prime contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with the clauses set forth in paragraphs (1.) through (4.) of this section.

VI. SUBLETTING OR ASSIGNING THE CONTRACT

This provision is applicable to all Federal-aid construction contracts on the National Highway System.

1. The contractor shall perform with its own organization contract work amounting to not less than 30 percent (or a greater percentage if specified elsewhere in the contract) of the total original contract price, excluding any specialty items designated by the contracting agency. Specialty items may be performed by subcontract and the amount of any such specialty items performed may be deducted from the total original contract price before computing the amount of work required to be performed by the contractor's own organization (23 CFR 635.116).
 - a. The term "perform work with its own organization" refers to workers employed or leased by the prime contractor, and equipment owned or rented by the prime contractor, with or without operators. Such term does not include employees or equipment of a subcontractor or lower tier subcontractor, agents of the prime contractor, or any other assignees. The term may include payments for the costs of hiring leased employees

from an employee leasing firm meeting all relevant Federal and State regulatory requirements. Leased employees may only be included in this term if the prime contractor meets all of the following conditions:

- (1) the prime contractor maintains control over the supervision of the day-to-day activities of the leased employees;
 - (2) the prime contractor remains responsible for the quality of the work of the leased employees;
 - (3) the prime contractor retains all power to accept or exclude individual employees from work on the project; and
 - (4) the prime contractor remains ultimately responsible for the payment of predetermined minimum wages, the submission of payrolls, statements of compliance and all other Federal regulatory requirements.
- b. "Specialty Items" shall be construed to be limited to work that requires highly specialized knowledge, abilities, or equipment not ordinarily available in the type of contracting organizations qualified and expected to bid or propose on the contract as a whole and in general are to be limited to minor components of the overall contract.
2. The contract amount upon which the requirements set forth in paragraph (1) of Section VI is computed includes the cost of material and manufactured products which are to be purchased or produced by the contractor under the contract provisions.
 3. The contractor shall furnish (a) a competent superintendent or supervisor who is employed by the firm, has full authority to direct performance of the work in accordance with the contract requirements, and is in charge of all construction operations (regardless of who performs the work) and (b) such other of its own organizational resources (supervision, management, and engineering services) as the contracting officer determines is necessary to assure the performance of the contract.
 4. No portion of the contract shall be sublet, assigned or otherwise disposed of except with the written consent of the contracting officer, or authorized representative, and such consent when given shall not be construed to relieve the contractor of any responsibility for the fulfillment of the contract. Written consent will be given only after the contracting agency has assured that each subcontract is evidenced in writing and that it contains all pertinent provisions and requirements of the prime contract.
 5. The 30% self-performance requirement of paragraph (1) is not applicable to design-build contracts; however, contracting agencies may establish their own self-performance requirements.

VII. SAFETY: ACCIDENT PREVENTION

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

1. In the performance of this contract the contractor shall comply with all applicable Federal, State, and local laws governing safety, health, and sanitation (23 CFR 635). The contractor shall provide all safeguards, safety devices and protective equipment and take any other needed actions as it determines, or as the contracting officer may determine, to be reasonably necessary to protect the life and health of employees on the job and the safety of the public and to protect property in connection with the performance of the work covered by the contract.
2. It is a condition of this contract, and shall be made a condition of each subcontract, which the contractor enters into pursuant to this contract, that the contractor and any subcontractor shall not permit any employee, in performance of the contract, to work in surroundings or under conditions which are unsanitary, hazardous or dangerous to his/her health or safety, as determined under construction safety and health standards (29 CFR 1926) promulgated by the Secretary of Labor, in accordance with Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3704).
3. Pursuant to 29 CFR 1926.3, it is a condition of this contract that the Secretary of Labor or authorized representative thereof, shall have right of entry to any site of contract performance to inspect or investigate the matter of compliance with the construction safety and health standards and to carry out the duties of the Secretary under Section 107 of the Contract Work Hours and Safety Standards Act (40 U.S.C.3704).

VIII. FALSE STATEMENTS CONCERNING HIGHWAY PROJECTS

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

In order to assure high quality and durable construction in conformity with approved plans and specifications and a high degree of reliability on statements and representations made by engineers, contractors, suppliers, and workers on Federal-aid highway projects, it is essential that all persons concerned with the project perform their functions as carefully, thoroughly, and honestly as possible. Willful falsification, distortion, or misrepresentation with respect to any facts related to the project is a violation of Federal law. To prevent any misunderstanding regarding the seriousness of these and similar acts, Form FHWA-1022 shall be posted on each Federal-aid highway project (23 CFR 635) in one or more places where it is readily available to all persons concerned with the project:

18 U.S.C. 1020 reads as follows:

"Whoever, being an officer, agent, or employee of the United States, or of any State or Territory, or whoever, whether a person, association, firm, or corporation, knowingly makes any false statement, false representation, or false report as to the character, quality, quantity, or cost of the material used or to be used, or the quantity or quality of the work performed or to be performed, or the cost thereof in connection with the submission of plans, maps, specifications, contracts, or costs of construction on any highway or related project submitted for approval to the Secretary of Transportation; or

Whoever knowingly makes any false statement, false representation, false report or false claim with respect to the character, quality, quantity, or cost of any work performed or to be performed, or materials furnished or to be furnished, in connection with the construction of any highway or related project approved by the Secretary of Transportation; or

Whoever knowingly makes any false statement or false representation as to material fact in any statement, certificate, or report submitted pursuant to provisions of the Federal-aid Roads Act approved July 1, 1916, (39 Stat. 355), as amended and supplemented;

Shall be fined under this title or imprisoned not more than 5 years or both."

IX. IMPLEMENTATION OF CLEAN AIR ACT AND FEDERAL WATER POLLUTION CONTROL ACT

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts.

By submission of this bid/proposal or the execution of this contract, or subcontract, as appropriate, the bidder, proposer, Federal-aid construction contractor, or subcontractor, as appropriate, will be deemed to have stipulated as follows:

1. That any person who is or will be utilized in the performance of this contract is not prohibited from receiving an award due to a violation of Section 508 of the Clean Water Act or Section 306 of the Clean Air Act.
2. That the contractor agrees to include or cause to be included the requirements of paragraph (1) of this Section X in every subcontract, and further agrees to take such action as the contracting agency may direct as a means of enforcing such requirements.

X. CERTIFICATION REGARDING DEBARMENT, SUSPENSION, INELIGIBILITY AND VOLUNTARY EXCLUSION

This provision is applicable to all Federal-aid construction contracts, design-build contracts, subcontracts, lower-tier subcontracts, purchase orders, lease agreements, consultant contracts or any other covered transaction requiring FHWA approval or that is estimated to cost \$25,000 or more – as defined in 2 CFR Parts 180 and 1200.

1. Instructions for Certification – First Tier Participants:

- a. By signing and submitting this proposal, the prospective first tier participant is providing the certification set out below.
- b. The inability of a person to provide the certification set out below will not necessarily result in denial of participation in this covered transaction. The prospective first tier participant shall submit an explanation of why it cannot provide the certification set out below. The certification or explanation will be considered in connection with the department or agency's determination whether to enter into this transaction. However, failure of the prospective first tier participant to furnish a certification or an explanation shall disqualify such a person from participation in this transaction.
- c. The certification in this clause is a material representation of fact upon which reliance was placed when the contracting agency determined to enter into this transaction. If it is later determined that the prospective participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the contracting agency may terminate this transaction for cause of default.
- d. The prospective first tier participant shall provide immediate written notice to the contracting agency to whom this proposal is submitted if any time the prospective first tier participant learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.
- e. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contract). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- f. The prospective first tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency entering into this transaction.
- g. The prospective first tier participant further agrees by submitting this proposal that it will include the clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transactions," provided by the department or contracting agency, entering into this covered transaction, without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- h. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- i. Nothing contained in the foregoing shall be construed to require the establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of the prospective participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- j. Except for transactions authorized under paragraph (f) of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency may terminate this transaction for cause or default.

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2. Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion – First Tier Participants:

- a. The prospective first tier participant certifies to the best of its knowledge and belief, that it and its principals:
 - (1) Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency;
 - (2) Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, or receiving stolen property;
 - (3) Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph (a)(2) of this certification; and
 - (4) Have not within a three-year period preceding this application/proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- b. Where the prospective participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

2. Instructions for Certification - Lower Tier Participants:

(Applicable to all subcontracts, purchase orders and other lower tier transactions requiring prior FHWA approval or estimated to cost \$25,000 or more - 2 CFR Parts 180 and 1200)

- a. By signing and submitting this proposal, the prospective lower tier is providing the certification set out below.
- b. The certification in this clause is a material representation of fact upon which reliance was placed when this transaction was entered into. If it is later determined that the prospective lower tier participant knowingly rendered an erroneous certification, in addition to other remedies available to the Federal Government, the department, or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

- c. The prospective lower tier participant shall provide immediate written notice to the person to which this proposal is submitted if at any time the prospective lower tier participant learns that its certification was erroneous by reason of changed circumstances.
- d. The terms "covered transaction," "debarred," "suspended," "ineligible," "participant," "person," "principal," and "voluntarily excluded," as used in this clause, are defined in 2 CFR Parts 180 and 1200. You may contact the person to which this proposal is submitted for assistance in obtaining a copy of those regulations. "First Tier Covered Transactions" refers to any covered transaction between a grantee or subgrantee of Federal funds and a participant (such as the prime or general contractor). "Lower Tier Covered Transactions" refers to any covered transaction under a First Tier Covered Transaction (such as subcontracts). "First Tier Participant" refers to the participant who has entered into a covered transaction with a grantee or subgrantee of Federal funds (such as the prime or general contractor). "Lower Tier Participant" refers any participant who has entered into a covered transaction with a First Tier Participant or other Lower Tier Participants (such as subcontractors and suppliers).
- e. The prospective lower tier participant agrees by submitting this proposal that, should the proposed covered transaction be entered into, it shall not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in this covered transaction, unless authorized by the department or agency with which this transaction originated.
- f. The prospective lower tier participant further agrees by submitting this proposal that it will include this clause titled "Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion-Lower Tier Covered Transaction," without modification, in all lower tier covered transactions and in all solicitations for lower tier covered transactions exceeding the \$25,000 threshold.
- g. A participant in a covered transaction may rely upon a certification of a prospective participant in a lower tier covered transaction that is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless it knows that the certification is erroneous. A participant is responsible for ensuring that its principals are not suspended, debarred, or otherwise ineligible to participate in covered transactions. To verify the eligibility of its principals, as well as the eligibility of any lower tier prospective participants, each participant may, but is not required to, check the Excluded Parties List System website (<https://www.epls.gov/>), which is compiled by the General Services Administration.
- h. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this clause. The knowledge and information of participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
- i. Except for transactions authorized under paragraph e of these instructions, if a participant in a covered transaction knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available to the Federal Government, the department or agency with which this transaction originated may pursue available remedies, including suspension and/or debarment.

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Certification Regarding Debarment, Suspension, Ineligibility and Voluntary Exclusion--Lower Tier Participants:

- 1. The prospective lower tier participant certifies, by submission of this proposal, that neither it nor its principals is presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from participating in covered transactions by any Federal department or agency.
- 2. Where the prospective lower tier participant is unable to certify to any of the statements in this certification, such prospective participant shall attach an explanation to this proposal.

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XI. CERTIFICATION REGARDING USE OF CONTRACT FUNDS FOR LOBBYING

This provision is applicable to all Federal-aid construction contracts and to all related subcontracts which exceed \$100,000 (49 CFR 20).

- 1. The prospective participant certifies, by signing and submitting this bid or proposal, to the best of his or her knowledge and belief, that:
 - a. No Federal appropriated funds have been paid or will be paid, by or on behalf of the undersigned, to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.
 - b. If any funds other than Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any Federal agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with this Federal contract, grant, loan, or cooperative agreement, the undersigned shall complete and submit Standard Form-LLL, "Disclosure Form to Report Lobbying," in accordance with its instructions.
- 2. This certification is a material representation of fact upon which reliance was placed when this transaction was made or entered into. Submission of this certification is a prerequisite for making or entering into this transaction imposed by 31 U.S.C. 1352. Any person who fails to file the required certification shall be subject to a civil penalty of not less than \$10,000 and not more than \$100,000 for each such failure.
- 3. The prospective participant also agrees by submitting its bid or proposal that the participant shall require that the language of this certification be included in all lower tier subcontracts, which exceed \$100,000 and that all such recipients shall certify and disclose accordingly.

CONSTRUCTION SPECIFICATIONS **PROJECT WBS 44973.3.3 TIP F-5702 C**

A.0 GENERAL REQUIREMENTS

A.1 DEFINITIONS

Wherever the words defined in this paragraph or pronouns used in their stead occur in these specifications, they shall have the meanings here given.

(a) The term "Owner" or "Department" means the North Carolina Department of Transportation, and shall include its authorized Representatives and Inspectors.

(b) The terms "Contractor" or "builder" means the person, firm or corporation named as such in the contract and includes the plural number and the feminine gender when such are named in the contract as the contractor.

(c) The term "Subcontractor" means an individual, partnership, firm, joint venture, or Corporation to whom the Contractor, with written consent of the Engineer, sublets any part of the contract.

(d) The word "Vendor" shall be taken to mean suppliers and/or manufacturers of materials and equipment purchased by the Contractor for use in the work covered by these specifications.

(e) Coast Guard Inspector means Officer in Charge of Marine Inspection having cognizance over the certification of the vessel, where applicable, and includes Inspection Officers under his command.

(f) The words "approval of the Owners" or "approved" shall mean an approval in writing signed by the owners, and shall also mean approval by the cognizant U. S. Coast Guard, section or office where applicable.

(g) The words "furnish", "provide" and "install" shall be taken to mean that the Contractor shall provide and install the specified material or equipment with necessary fittings, foundations, piping, electrical wiring and fixtures, etc., and make necessary hook-up and connections even though one of the words only is used, unless it is specifically stated otherwise.

(h) The term "work" of the Contractor or Builder or subcontractor includes labor or materials or both unless specifically stated otherwise herein.

(i) The words "renew" or "replace" shall be taken to mean that the existing material or item referred to shall be removed and disposed of as directed, and other material or items installed in place of the same as in subparagraph (h) above.

(j) The word "reinstall" shall mean that existing material shall be reused in either its original or a new location, and completely installed as in subparagraph (h) above.

(k) The term "Notice" as used herein shall include all written notices, demands, instructions, claims, approvals, and disapprovals, required to obtain compliance with Contract requirements. Any written notice by either party to the Contract shall be considered sufficiently given if delivered to the other party, agent, representative or officer in person. The person to whom the notice is delivered shall sign the duplicate copy and return the same to the other party immediately after receipt.

(l) The words "or equal" shall be taken to mean of equal quality, size capacity, general configuration and suitability for the use intended, as the item or items set out. Where reference is made to "trade names" or "catalogs", the reference is descriptive and restrictive unless stated otherwise by adding "or equal".

(m) The words "best Marine quality" or "first-class material" shall be taken to mean the top grade product of an approved marine manufacturer.

(n) The words "first class workmanship" shall be taken to mean the level of quality that would be done by a capable marine mechanic experienced in construction and outfitting of passenger vessels, using proper tools in good condition and in accordance with normally accepted good shipbuilding practice.

(o) All "tons" used herein are 2,240 pounds each

(p) The term "Act of God" as used herein is defined as an unusual and extraordinary manifestation of the forces of nature that could not under normal conditions have been anticipated or expected. It includes a tornado, a hurricane, lightning, and fires caused by lightning, but it does not include strikes, or other work stoppages, rain not accompanied by a hurricane, fire not caused by lightning or hot or cold temperatures.

(q) The "Chief Engineer" means Chief Engineer of Operations Division of Highways, North Carolina Dept. of Transportation.

(r) "Division of Highways" means the division of the Department of Transportation which, under the direction of the Secretary of Transportation, carries out state highway planning, construction, and maintenance functions assigned to the Department of Transportation.

(s) The "Engineer" means the Chief Engineer of Operations, Division of Highways, North Carolina Department of Transportation, acting directly or through his duly authorized representatives.

(t) The "Inspector" means the authorized representatives of the engineer assigned to make a detailed inspection of any or all portions of the work and materials.

(u) "Department" or "Department of Transportation" means a principal department of the Executive Branch which performs the function of planning, construction, and maintenance of an integrated statewide transportation system.

(v) "Board" or "Board of Transportation" means the Board created by the provisions of NCGS 143B-350 for formulating policies for the Department of Transportation and awarding all transportation construction contracts.

A.2 BIDDING REQUIREMENTS AND CONDITIONS

A.2-1 INVITATION TO BID

After the advertisement has been made, an invitation to bid will be mailed to known qualified Contractors informing them that bids will be received for the construction of specific project. Such invitation will indicate the project number, principal characteristics, and general description; a general summary of the boat dimensions, capacity, propulsion, and hull type and material; and the time and place for the public opening and reading of bids received. Information concerning the cost of and the availability of plans and proposal forms will also be indicated in the invitation to bid.

A.2-2 PREQUALIFYING TO BID

Prospective Bidders shall prequalify with the Department. The requirements for prequalification will be furnished each prospective Bidder by the Contractual Services Management office, Raleigh, NC (919-707-4803). All required statements and documents should be filed with the Contractual Services Management office by the prospective Bidder at least two (2) weeks prior to the date of opening of bids. A bid will not be opened unless all prequalification requirements have been met by the bidder and have been found to be acceptable by the Contractual Services Management office.

A.2-3 CONTENTS OF PROPOSAL FORMS

A proposal form will be furnished by the Department upon request. Each proposal form will be marked on the front cover by the Department with the name of the prequalified firm or individual to whom it is being furnished. It will set forth the date and time for the opening of bids. The form will include any requirements which vary from or are not contained in the plans. It will also include a bid sheet on which the Contractor shall place his lump sum bid for the project. All papers bound with the proposal form are necessary parts thereof and shall not be detached, taken apart, or altered.

The plans, specifications and other documents designated in the proposal form shall be considered a part of the proposal form whether attached or not. The prospective Bidder will be required to pay the Department of Transportation the sum stated in the invitation to bid for each copy of the proposal form and each set of plans requested.

A.2-4 EXAMINATION OF PLANS AND SPECIFICATIONS

The Bidder shall carefully examine the proposal form, plans and specifications, before submitting a bid. It is mutually agreed that submission of a bid shall be considered prima-facie evidence that the Bidder has made such examinations and is reasonably satisfied as to the conditions to be encountered in performing the work, and as to the requirements of the proposal form and contract.

A.2-5 PREPARATION AND SUBMISSION OF BIDS

All bids shall be prepared and submitted in accordance with the following listed requirements:

1. **THE PROPOSAL FORM FURNISHED BY THE DEPARTMENT SHALL BE USED AND SHALL NOT BE TAKEN APART OR ALTERED.** The bid shall be submitted on the same proposal form which has been furnished to Bidder by the Department, as identified by the Bidder's name marked on the front cover by the Department.

2. All entries including signatures shall be written in ink.

3. The Bidder shall submit a unit or lump sum price for every item in the proposal form other than items which are authorized alternates to those items for which a bid price has been submitted.

4. The total amount bid shall be written in figures in the proper place in the proposal form.

5. Changes in any entry shall be made by marking through the entry in ink and making the correct entry adjacent thereto in ink. A representative of the bidder shall initial the change in ink.

6. The bid shall be properly executed. In order to constitute proper execution, the bid shall be executed in strict compliance with the following:

a. If a bid is by an individual, it shall show the name of the individual and shall be signed by the individual with the word "Individually" appearing under the signature. If the individual operates under a firm name, the bid shall be signed in the name of the individual doing business under the firm name.

b. If the bid is by a corporation, it shall be executed in the name of the corporation by the President or Vice President. It shall be attested by the Secretary or Assistant Secretary. The seal of the corporation shall be affixed. If the bid is executed on behalf of a corporation in any other manner than as above, a certified copy of the minutes of the Board of Directors of said corporation authorizing the manner and style of execution and the authority of the person executing shall be attached to the bid or shall be on file with the Department.

c. If the bid is made by a partnership, it shall be executed in the name of the partnership by one of the partners.

d. If the bid is a joint venture, it shall be executed by each of the joint ventures in the appropriate manner set out above. In addition, the execution by the joint ventures shall appear below their names.

7. The bid shall not contain any unauthorized additions, deletions, or conditional bids.

8. The Bidder shall not add any provision reserving the right to accept or reject an award, or to enter into a contract pursuant to an award.

9. The bid shall be accompanied by a bid bond on the form furnished by the Department or a bid deposit. The bid bond shall be completely and properly executed in accordance with the requirements of Section A.2-6. The bid deposit shall be a certified check or cashier's check in accordance with Section A.2-6.

10. The bid shall be placed in a sealed envelope and shall have been delivered and received by the Department prior to the time specified in the invitation to bid.

A.2-6 BID BOND OR BID DEPOSIT

Each bid shall be accompanied by a corporate bid bond or a bid deposit of a certified or cashier's check in the amount of at least 5% of the total amount bid for the contract. No bid will be considered or accepted unless accompanied by one of the foregoing securities. The bid bond shall be executed by a Corporate Surety licensed to do business in North Carolina and the certified check or cashier's check shall be drawn on a bank or trust company insured by the Federal Deposit Insurance Corporation and made payable to the Department of Transportation in an amount of at least 5% of the total amount bid for the contract. The condition of the bid bond or bid deposit is: the Principal shall not withdraw its bid within 60 days after the opening of the same, and if the Board of Transportation shall award a contract to the Principal, the Principal shall within 14 calendar days after the notice of award is received by him give payment and performance bonds with good and sufficient surety as required for the faithful performance of the contract and for the protection of all persons supplying labor and materials in the prosecution of the work; in the event of the failure of the Principal to give such payment and performance bonds as required, then the amount of the bid bond shall be immediately paid to the Department as liquidated damages or, in the case of a bid deposit, the deposit shall be forfeited to the Department.

When a bid is secured by a bid bond, the bond shall be on the form furnished by the Department. The bid bond shall be executed by both the Bidders and a Corporate Surety licensed under the laws of North Carolina to write such bonds.

The execution by the Bidder shall be in the same manner as required by Section A.2-5 for

the proper execution of the bid. The execution by the Corporate Surety shall be the same as is provided for by Section A.2-5, Item 6b, for the execution of the bid. The seal of the Corporate Surety shall be affixed to the bid bond. The bid bond form furnished is for execution of the Corporate Surety by a General Agent or Attorney in Fact. A certified copy of the Power of Attorney shall be attached if the bid bond is executed by a General Agent or Attorney in Fact. The Power of Attorney shall contain a certification that the Power of Attorney is still in full force and effect as of the date of execution of the bid bond by the General Agent or Attorney in Fact. If the bid bond is executed by the Corporate Surety by the President or Vice President, and attested to by the Secretary or Assistant Secretary, then the bid bond form furnished shall be modified for such execution, instead of execution by the Attorney in Fact or the General Agent.

When a bid is secured by a bid deposit (certified check or cashier's check), the execution of a bid bond will not be required.

A.2-7 DELIVERY OF BIDS

All bids shall be placed in a sealed envelope having the name and address of the Bidder, and the statement **"Bid for the Construction of Project No. TIP F-5702C WBS 44973.3.3 in Dare / Hyde Counties"** on the outside of the envelope.

If delivered prior to the Bid Date, or on the day the bids are to be received, Bids may be delivered in person or by USPS, Federal Express, etc. to the State Contract Officer, at:

North Carolina Department of Transportation
Contract Standards and Development Unit
Century Center Building B (Delivery)
1020 Birch Ridge Drive
Raleigh, NC 27610
Attention: State Contract Officer
(919) 707-6900

If delivered in person to the State Contract Officer, bids shall have been received prior to **2:00 pm** on the day of the bid opening. If delivered by mail, bids shall have been received prior to **2:00 pm** on the day of the bid opening. Bids received after the times specified above **WILL NOT** be accepted and will be returned to the Bidder unopened.

A.2-8 WITHDRAWAL OR REVISION OF BIDS

A Bidder may, without prejudice to himself, withdraw a bid after it has been delivered to the Department of Transportation, provided the request for such withdrawal is either in writing or by telegram to the Chief Engineer of Operations or the Engineer presiding over the public opening of bids before the date and time set for the opening of bids. The Bidder may then submit a revised bid provided it is received prior to the time set for opening of bids.

Only those persons authorized to sign bids under the provisions of Article A.2-5, Item 6 shall be recognized as being- qualified to withdraw a bid.

A.2-9 RECEIPT AND OPENING OF BIDS AND NON-COLLUSION AFFIDAVIT

(a) RECEIPT AND OPENING OF BIDS

Bids will be opened and read publicly at the time and place indicated in the invitation to

bid. Bidders, their authorized agents, and other interested parties are invited to be present.

A bid will be received and opened from any Bidder who:

1. Is prequalified in accordance with the provisions of Article A.2-2, and
2. Has delivered the bid to the place indicated in the Specifications prior to the time indicated in the invitation to bid.

A bid received from a Bidder who has not complied with the above requirements will be returned to the Bidder unopened and under no circumstances will be considered for award.

(b) NON-COLLUSION AFFIDAVIT

In compliance with Section 112(c) of Title 23 USC and current regulations of the Department, each and every Bidder will be required to furnish the Department with an affidavit certifying that the Bidder has not entered into any agreement, participated in any collusion, or otherwise taken any action in restraint of free competitive bidding in connection with his bid on the project. Affidavit will be included in the proposal form as part of the Signature sheets. Execution of Signature sheets will also constitute execution of Non-Collusion Affidavit. Signature sheets shall be notarized.

A.2-10 REJECTION OF BIDS

Any bid submitted which fails to comply with any of the requirements of Articles A.2-5, A.2-6 and A.2-7 shall be considered irregular and may be rejected, except that any bid which fails to comply with Section A.2-5, Item 3 shall be considered irregular and will be rejected.

In addition to the above, any bids submitted by any Bidder who has failed to comply with the following requirement will be rejected.

Any bid submitted by a Bidder who at the time of the submission is bankrupt, insolvent, or has committed an act of bankruptcy or financially unable to meet its outstanding obligations, shall be considered irregular and will be rejected.

Any Bidder who has been disqualified from bidding shall have been requalified prior to the time set for receiving bids. The right to reject any and all bids shall be reserved to the Board.

A.2-11 DISQUALIFICATION OF BIDDERS

Any one of the following causes may be justification for disqualifying a Contractor from further bidding until he has applied for and has been requalified in accordance with Article A.2-2:

1. Unsatisfactory progress in accordance with Section A.7.
2. Being declared in default in accordance with Section A.32.
3. Uncompleted contracts which, in the judgement of the Chief Engineer of Operations, might hinder or prevent the prompt completion of additional work if awarded.
4. Failure to comply with prequalification requirements.
5. The submission of more than one bid for the same work from an individual, partnership, joint venture, or corporation under the same or different names.
6. Evidence of collusion among Bidders. Each participant in such collusion will be disqualified.
7. Failure to furnish a non-collusion affidavit upon request.

A.3 AWARD AND EXECUTION OF CONTRACT

A.3-1 CONSIDERATION OF BIDS

After the bids are opened and read, the amount bid for each item and the total bid will be checked and made known to the public.

The right is reserved to reject any or all bids, to waive technicalities, to request the low bidder to submit an up-to-date financial and operating statement, to advertise for new bids, or to proceed to do the work otherwise, if in the judgment of the Board, the best interests of the State will be promoted thereby.

A.3-2 AWARD OF CONTRACT

The award of the contract, if it be awarded, will be made by the Board to the lowest responsible Bidder whose bid complies with all the requirements prescribed. The lowest responsible Bidder will be notified by letter mailed to the post office address shown on his bid that his bid has been accepted and that he has been awarded the contract. This letter shall constitute the notice of award. The notice of award, if the award be made, will be issued within sixty calendar days after the opening of bids, except that with the consent of the successful Bidder the decision to award the contract to such Bidder may be delayed for as long a time as may be agreed upon by the Department of Transportation and such Bidder. In the absence of such agreement, the lowest responsible Bidder may withdraw his bid at the expiration of the 60 calendar days without penalty if notice has not been issued.

A.3-3 CANCELLATION OF AWARD

The Board of Transportation reserves the right to rescind the award of any contract at any time before the receipt of the properly executed contract and contract bonds from the successful Bidder.

A.3-4 RETURN OF BID BOND OR BID DEPOSIT

All bid bonds will be retained by the Department until the contract is executed by the successful Bidder, after which all such bid bonds will be destroyed unless the individual bid bond form contains a note requesting that it be returned to the Bidder or the Surety.

Checks which have been furnished as a bid deposit by all Bidders other than the three (3) lowest responsible Bidders will be retained not more than ten (10) days after the date of opening of bids. After the expiration of such period, Department of Transportation warrants in the equivalent amount of checks which were furnished as a bid deposit will be issued to all Bidders other than the three (3) lowest responsible Bidders.

Checks which have been furnished as a bid deposit by the three (3) lowest responsible Bidders will be retained until after the contract bonds have been furnished by the successful Bidder, at which time Department of Transportation warrants in the equivalent amount of checks which were furnished as a bid deposit will be issued to the three (3) lowest responsible Bidders.

A.3-5 CONTRACT BONDS

The successful Bidder, within 14 calendar days after the notice of award is received by him, shall provide the Department with a contract payment bond and contract performance bond

each in an amount equal to 100 percent of the amount of the contract. All bonds shall be in conformance with *GS44A-33*. The Corporate Surety furnishing the bonds shall be authorized to do business in the State.

A.3-6 EXECUTION OF CONTRACT

As soon as possible following receipt of the properly executed contract bonds, the Department will complete the execution of the contract, retain the original contract and return one certified copy of the contract to the Contractor.

A.3-7 FAILURE TO EXECUTE CONTRACT

The successful Bidder's failure to file acceptable bonds within 14 calendar days after the notice of award is received by him shall be just cause for the forfeiture of the bid bond or bid deposit and rescinding the award of the contract. Award may then be made to the next lowest responsible Bidder or the work may be re-advertised and accomplished under contract or otherwise, as the Board of Transportation may decide.

A.4 INTENT

(a) It is the intent of these specifications that the Contractor shall build, equip, launch, test and deliver to the Owner one (1) vessel, as described, complete and ready for service in every respect as concerns the work covered herein. The Contractor shall provide the necessary plant, launch/railway and lay days to construct the vessel, all tools, materials, machinery, equipment, fittings and labor, including upkeep of the vessel until final acceptance by the Owner.

(b) The Contractor shall make removals and replacements as necessary to affect the work covered by these specifications as a part of the contract if required.

(c) The Contractor shall coat all new work and restore and recoat all areas disturbed due to the work required by these specifications as a part of the Contract.

(d) Any work, equipment, machinery, or other part or parts of the vessel injured or damaged while the vessel is in the custody of the Contractor during the progress of the work covered by these specifications shall be repaired by the Contractor to the satisfaction of the Inspector, at no cost to the Owner.

(e) Any work or detail omitted from these specifications or plans, but necessary to complete the specified construction covered herein in accordance with good shipbuilding practice shall be furnished by the Contractor as a part of the Contract at no additional cost to the Owner, and nothing herein or on the plans shall be construed as meaning otherwise.

(f) Whereas the true intent and meaning is manifest, the Contractor shall not be relieved from fulfilling the full requirements of the contract plans, contract guidance plans and specifications, or of the responsibility for producing satisfactory results, or of properly performing any work by any of the following:

Absence of the details where the essential features, functions and arrangements are defined. Mistakes in description of hull or machinery details which, if not corrected, would interfere with the proper performance of the items involved.

The Contractor is responsible for proper performance of the Contract in accordance with the full manifested intent of these specifications despite any error, omission, discrepancy or lack of clarity in the plans or specifications which should reasonably have been apparent to an experienced Contractor upon a careful and critical review.

(g) The intent above given is of the essence of these specifications.

A.5 INSPECTION

(a) All work and materials entering into the construction of the vessel, it's machinery, fittings and equipment shall be subject at all times to the inspection and approval of the Inspector and where applicable the U.S. Coast Guard.

(b) It is the duty of the Inspector to insist that the Contractor perform all work and supply all materials as called for in these specifications. The Contractor shall perform all work in a satisfactory manner. In the event that any work or materials fail to comply with these specifications the Inspector will notify the Contractor in writing of the deficiency or unsatisfactory work as soon as it comes to his attention.

(c) Any work not satisfactory, whether from defective material, departure from specifications, or poor workmanship, or any work performed in the absence of the Inspector and later found to be unsatisfactory, shall be removed and replaced promptly to the satisfaction of the Inspector, at the Contractor's expense.

(d) The Owners, the Inspector, the U. S. Coast Guard, and any person employed by the same shall be allowed access to the work at any time during the regular working hours of the Contractor, or at such other times as will not entail additional expense to the Contractor, and the Contractor shall furnish all reasonable facilities and give ample time for such inspection.

A desk, desk chair, 4-drawer legal file cabinet with lock and keys, three (3) chairs, a 3' x 6' x 32" drawing board, compact copy machine refrigerator at least 2 cubic feet, access to coffee maker, adequate lighting, access to sanitary facilities, and a dedicated parking space, shall be provided in a private office, and apart from facilities occupied by contractor's personnel. Office shall have lockable doors with keys and shall be for the Inspector's and Owner's sole use during the contract period. Office shall be provided with telephone service and internet connection with broadband service. Contractor shall provide internet service access as a part of this contract.

(e) The Inspector shall determine the amount, quality, acceptability, and witness all parts of the work. He shall interpret the specifications, Contract Documents and supplemental agreements, if any, and he shall decide all other questions in connection with the work. The Inspector shall have no authority to approve or order changes in the work which alter the terms or conditions of the Contract. The Inspector shall confirm in writing within five (5) days any oral order, direction, requirement, or determination. The decision of the Inspector shall be final and binding on both Contractor and Owner.

(f) Nothing herein shall be taken to relieve the Contractor of complete responsibility for unsatisfactory workmanship, faulty materials or other deficiencies of any kind whatsoever that are the result of his work, his sub-contractors work, or material purchased or provided and installed by him.

(g) The Inspector shall have general surveillance of the work. All orders and communications from the Contractor shall be transmitted through him. He shall have authority to stop the work whenever such stoppage may be necessary to ensure the proper execution of contract, said stoppage is to be a Contractor caused delay in computing liquidated damages, if any, for late delivery.

(h) As the Inspector is, in the first instance, the interpreter of the conditions of the contract and the judge of its performance, he shall use his powers under the contract to enforce its faithful performance.

(i) The Contractor shall notify the Inspector prior to any and all Contractor scheduled meetings or inspections relevant to this contract which involve any representative of the U.S. Coast Guard. The Inspector shall be given the opportunity, at his option, to be present on such occasions. At no time shall the Contractor allow access to any portion of this contract by personnel other than those employed by the Contractor without first receiving the Inspectors approval.

A.6 LAWS, PERMITS, AND REGULATIONS

(a) The Contractor shall obtain and pay for all licenses and permits and shall pay for all fees and charges for connection to outside service and use of property other than the site of the work for storage of materials and other purposes.

(b) The Contractor shall comply with all laws, ordinances, and regulations applicable to the work unless in conflict with contract requirements. If the Contractor ascertains at any time that any requirements of this Contract are at variance with applicable laws, ordinances, or regulations he shall promptly notify the Inspector and Owner and any necessary adjustment of the Contract shall be made as specified under Changes in the work.

(c) Any questions arising under this contract shall be determined under the laws of the State of North Carolina.

(d) The Contractor shall furnish the Inspector copies of affidavits upon request giving the original dates, renewal dates and expiration dates of all labor contracts, if any, related to any phase of the work to be performed in the shipyard under this contract.

A.7 PROSECUTION OF WORK (LIQUIDATED DAMAGES)

(a) Date of completion is the essence of any contract resulting from these specifications and plans. The Contractor will be required to complete all work no later than the date stated in the contract.

(b) Should progress of the work lag or fall behind schedule, the Contractor shall direct sufficient additional labor to work, including overtime if required, to maintain the contract delivery date, at no additional cost to the Owner.

(c) The Contractor will be required to pay liquidated damages for each and every day that delivery is delayed beyond the contract date for its completion. The timely completion of the performance of this contract has a substantial financial value to the Owners, which value is difficult or impossible to forecast or evaluate exactly. It is, therefore, stipulated and agreed that the value to the Owners for each calendar day of delay in delivery of the vessel by the Contractor to the Owners beyond the contract completion date of the work to be performed by the Contractor under this contract shall be a fixed sum and shall be set in advance. Upon the foregoing consideration and for the purpose of this contract, the sum of **One Thousand Dollars (\$1,000.00) per calendar day** is hereby mutually agreed upon as the sum which the Contractor shall give to the Owners as liquidated damages for each calendar day delayed beyond the contract completion date that the work remains unfinished and said vessel remains undelivered.

(d) For the purpose of these specifications in determining the calendar days for which liquidated damages will be charged the Contractor shall be entitled to an extension of the contract time or to an apportionment and remittance of liquidated damages when a contract is not completed within the contract time to the extent that delays to the current controlling operations, or operations, were caused by acts of God as defined herein, or acts of the Boards or its agents. The Contractor, however, shall be entitled to an extension of contract time, or an apportionment and remittance of

liquidated damages, only to the extent and in the proportion that such delays were caused by acts of God or acts of the Board, and it is understood that the Board does not hereby waive or release any claim against the Contractor for liquidated damages when the contract is not completed within the contract time for any reason whatsoever other than the said acts of God or acts of the Board. A request by the Contractor for an extension of time shall be made to the Inspector within five (5) days after such delay has occurred and he shall make a determination as to the cause of the delay and the amount of time that the contract should be extended by reason of such delay.

(e) It is understood and agreed that if a claim is filed for an extension of contract time, or an apportionment and remittance of liquidated damages, the burden of proof shall be upon the Contractor to establish the acts of God or the acts of the Board causing the alleged delay; and if the Contractor fails to sustain the burden of proof, he shall not be entitled to an extension of contract time, or to an apportionment and remittance of liquidated damages. The burden of proof herein referred to shall be the same that in other cases of like nature exists. Proof by the Contractor of delays due to an act of God or act of the Board to enforce or collect liquidated damages due to any other reason whatsoever.

(f) The Contractor is hereby notified that no consideration will be given to requests for remissions of liquidated damages for any reason whatsoever, except as covered by Paragraph A.7 herein. The Contract date for completion will be changed on a negotiated basis for any work authorized or deleted by supplemental agreements to the original contract.

A.7-1 WORK PROGRESS

(a) It is the intent of these specifications that the Contractor shall commence work on the date of availability as noted elsewhere herein. The Contractor shall not begin work prior to the date of availability without written approval of the Inspector. If such approval is given and the Contractor does begin work prior to the date of availability, the Department will assume no responsibility for any delays caused prior to the date of availability by any reason whatsoever, and such delays, if any, will not constitute a valid reason for extending the completion date.

(b) The Contractor shall not perform any work on the project until the Department has received the properly executed contract and contract bonds.

(c) It is further the intent of these specifications that the Contractor shall pursue the work diligently with workmen in sufficient numbers, abilities, and supervision and with equipment, material, and method of construction as may be required to complete the work described in the contract, or as may be amended by the completion date.

A.7-2 MASTER CONSTRUCTION SCHEDULE

(a) The Contractor shall prepare and submit for approval by the Inspector, a Master Construction Schedule of his proposed working progress on the project. The Contractor shall submit to NCDOT, the preliminary Master Construction Schedule showing the Contractor's plan and construction sequence proposed to accomplish the work with the Contract period. The preliminary and all subsequent Master Construction Schedule submittals shall be in PDF format and in MS Project native file format. NCDOT will review this document, comment, and return review comments within ten (10) working days to the Contractor. NCDOT will then meet with the Contractor to discuss the comments. The Contractor shall schedule the review meeting to be held within ten (10) working days after receipt of NCDOT comments. The Master Construction Schedule shall be updated by the Contractor within two (2) working days after the review meeting,

and then resubmitted to NCDOT for final approval as the working document.

(b) The Master Construction Schedule shall sequence and schedule all work detailed in the Contract Documents, in accordance with the generally accepted practices for project management. The Master Construction Schedule shall be a time-phased/resource loaded Gantt Bar Chart. The Contractor shall decompose the activities indicated in the Contract Documents, down to a sufficient number of discrete tasks, to adequately control and monitor the work and to clearly report progress for the duration of the project. Progress shall be shown as a percentage by task, by boat and by overall project completion. Indicate, by table or directly on the Gantt Bar Chart, the start and stop dates, free float, and total float for each task. Indicate, by table or by link lines, all predecessor and successor dependencies for each task. Develop and clearly indicate the critical path through the project.

(c) The proposed Master Construction Schedule shall be submitted no later than the date of the project preconstruction conference (Section A.7-3) and before any work is begun on the project.

(d) When conditions beyond the Contractor's control have adversely affected his progress, the Contractor may submit a revised Master Construction Schedule to the Inspector for approval. Such revised Master Construction Schedule will not be approved unless accompanied by a detailed written statement giving the Contractor's reasons for the proposed revision.

(e) When, at any time during construction or repair of the project, the Contractor's progress deviates substantially from the latest approved Master Construction Schedule, the Inspector may request the Contractor to submit a revised Master Construction Schedule. Revised Master Construction Schedule requested by the Inspector shall be submitted within two (2) working days after the date of such request.

(f) The Master Construction Schedule shall additionally indicate the starting and completion dates of the following items:

- A. The Contract award date.
- B. Commencement and completion of engineering.
- C. Regulatory body submittal dates for calculations and drawings.
- D. Long lead time purchase order submittals. Anticipated date of delivery of all long lead time equipment and components and all major equipment.
- E. Construction of the demi-hull erection jig.
- F. Prefabrication, fabrication, assembly and erection of all structural components.
- G. Installation of major machinery components and packaged assemblies: Piping, mechanical, electrical, ventilation, coating, and outfitting systems installation.
- H. Builder's trials.
- I. Dock trials.
- J. Sea trials.
- K. Delivery of vessel to NCDOT.
- L. Anticipated Owner's acceptance of the vessel.
- M. Start, duration and completion of all significant task items.
- N. Anticipated date of all items described in this Specification for NCDOT Representative's Review or Approval.

Review of the Master Construction Schedule by the NCDOT Representative does not relieve the Contractor of its responsibility to adjust labor force, equipment resources, or work schedule, as necessary, to anticipate and ensure completion of the work within the prescribed contract period.

A.7-3 PRECONSTRUCTION CONFERENCE

(a) Immediately after receipt of notice of award, the Owner, Design Firm Elliott Bay Design Group (EBDG) and the Contractor will establish a mutually agreeable date on which the preconstruction conference will be held. The Contractor's project superintendent and other individuals representing the Contractor who are knowledgeable of the Contractor's proposed progress schedule or who will be in charge of major items of the work shall attend the preconstruction conference. Contractor shall provide necessary personnel to take, transcribe, correct, reproduce and distribute minutes of the pre-construction meeting.

A.7-4 CONSTRUCTION CONFERENCES

(a) After work on the project has begun, initially construction conferences shall be held monthly and adjusted to suit construction. The construction conferences are to be scheduled at times which are mutually agreeable to both the Contractor's project superintendent and the Inspector. It shall be the superintendent's responsibility to attend the conference. Contractor may elect to have other members (See Section A.7-3) of his staff attend construction conferences. Contractor shall provide necessary personnel to take, transcribe, reproduce and distribute minutes of each meeting.

(b) The Contractor shall schedule and chair a monthly progress meeting, starting the first week, with the NCDOT Representative and the Contractor's key production persons. The Contractor shall provide an updated Master Construction Schedule and a progress report (expressed as a percentage of work complete) by Activity in a tabular form, and a list of completed milestones. The updated Master Construction Schedule shall reflect opened items, additional work, deleted work, and modifications, in addition to work progress and completions. In the last 75 calendar days of the scheduled performance period, the Contractor shall additionally prepare and submit an Open Task Report. The Contractor shall update and submit the Open Task Report at each subsequent progress meeting, and then daily starting the first day of the last thirty (30) calendar days of the scheduled performance period.

A.8 MATERIALS

(a) All materials intended for use, and all equipment used shall be new and as specified or as shown on plans except where Owner furnished (Paragraph A.17). Should the Contractor desire to substitute any material or equipment for that specified he must first obtain an order from the Owner in writing. (See also paragraphs A.5 and A.11 herein.)

(b) It is the responsibility of the Contractor to furnish sufficient data and information on materials he wishes to substitute to allow the Owner to make a decision.

(c) All equipment, where required, shall be of U. S. Coast Guard approved type and manufacture, and details or plans shall be submitted for U. S. Coast Guard approval by the Contractor where required and not previously approved. (See Section A.10 & A.11 "Plans and Specifications").

(d) Aluminum plate, shapes and other metal work shall be of the best quality domestic metal products for its particular purpose.

(e) Paints, electrical, piping, and all other materials shall conform to the standards of first class material for passenger vessels, as specified herein.

(f) All galvanizing shall be "hot dip" process.

(g) All plywood shall be waterproof marine type in all cases, with all edges sealed before installation, but after cutting to shape.

(h) Two (2) copies of each purchase order for all materials, articles, and equipment purchased by the Contractor shall be furnished to the Inspector prior to issue to the vendor. Purchase orders shall show unit and total price of materials, articles and equipment purchased and vendor's complete address.

(i) Materials requiring specified approval, which are ordered by the Contractor before approval, shall be entirely at the risk of the Contractor.

(j) Where material herein specified is not available on the present market, alternate materials of equal quality at no additional cost may be processed for approval of the Inspector by the Contractor.

(k) Any material or equipment provided by the Contractor which proves defective and unfit for service either before or after installation and whether previously approved or not shall be replaced by the Contractor with satisfactory items without additional cost to the Owner.

(l) Buy America compliance - This is a Federal Highways (FHWA) funded project. Source of supply and quality of materials shall comply with NCDOT requirements, as specified in Standard Specifications for Roads and Structures 2012 and Buy America requirements as required by 23 CFR 635.410 for federal aid highway projects.

In accordance with 23 CFR 635.410, a nationwide waiver has been granted for certain ferryboat equipment and machinery items: marine diesel engines, electrical switchboards and switch gear, electric motors, pumps, ventilation fans, boilers, electrical controls, and electronic equipment. Items not specifically included in the waiver remain subject to the Buy America requirements. While waivers may be requested for other items, the basis of successful waiver applications is the non-availability of a functionally equivalent and serviceable product in which all steel and iron is of wholly US origin. Any waiver request must be submitted by NCDOT, therefore the Contractor must apply to NCDOT to make a waiver application on their behalf. Any delay associated with any waiver application is the sole responsibility of the Contractor, and is not grounds for additional time or receipt of additional payment.

The Contractor shall be responsible for ensuring that its subcontractors also comply with these requirements.

The Contractor shall monitor the Buy America compliance throughout the duration of the Contract. The Contractor shall provide monthly updates of Buy America certification, inclusive of detailed, current status of contract percentages.

A.8-1 MATERIAL SUBSTITUTION

This Specification and the Contract Guidance Drawings describe features, salient characteristics, and systems' performance in conjunction with equipment and outfit items as a means of describing the general quality of design and construction of the various items and articles. It shall be understood that this quality of design and construction is NCDOT's preference. Substitutions for such items must be of "equivalent" quality and performance, and must be approved by NCDOT in writing.

An "equivalent" substitution is one which exhibits the same size, weight, characteristics, performance, reliability, and maintainability of the system and of the vessel as the item or material described by this Specification and Contract Guidance Drawings. The Contractor shall be wholly responsible for demonstrating the equivalent status of any substitution.

Requests for substitutions shall be made in writing to NCDOT, setting forth the reason for the

proposed substitution and providing documented evidence of the substitute's equivalence or superiority to the equipment, component or material integrated in the design. The request shall also provide the Contractor's assurance that the substitution, if approved, will not result in any increase in the Contract Price nor an extension of the delivery date of the vessel.

Requests for substitutions must include in writing:

- (a) Regulatory Body approval (as applicable).
- (b) Compliance with Buy America requirements (as applicable).
- (c) Comprehensive comparison of construction features and materials between the design guidance item and the proposed item. Complete drawings and dimensional data shall be submitted for each item. The weight of each item will be provided.
- (d) Comprehensive comparison of performance characteristics between the design item and the proposed item.
- (e) Comprehensive list of impacts that the substitution will cause to arrangements, structure and interfacing of piping, ventilation, electrical and control systems.
- (f) Valid manufacturers' price quote for the proposed item.
- (g) Location of the nearest distributor stocking parts and providing field service for the proposed item.
- (h) Verification that the item has similar or longer history of in use experience in commercial marine service.
- (i) Statement from Contractor indicating that the proposed substitution will not be a cost increase and will not extend the delivery date of the vessel.

Incomplete substitution requests will not be considered.

Substitutions will be considered if based upon Contractor preference or familiarity with an item or equipment, provided it can be demonstrated that the item is equivalent (as defined above) to or better than the design item.

Substitutions will not be considered based upon cost savings alone. For each substitution proposed, a valid price quote shall be obtained by the Contractor from the manufacturer of the item integrated into the design and the proposed substitution. If the substitution is approved, any such cost savings will be subject of a change order providing a credit for the full difference to the Owner. Substitutions for more expensive items will only be considered if they result in no cost change to the Owner, unless there is substantial benefit for the Owner.

NCDOT will respond to complete written requests within ten (10) working days. NCDOT's decision will be final.

The Contractor shall be responsible for all engineering costs and construction costs associated with any substitution.

A.8-2 PURCHASE TECHNICAL SPECIFICATIONS, REQUISITIONS AND PURCHASE ORDERS

The Contractor shall submit all purchase technical specifications, requisitions, purchase orders, or similar descriptive data for review of compliance with the contract requirements by NCDOT prior to purchasing equipment. Each document shall contain a full technical description of the material to be ordered. If the Contractor wishes to purchase or supply equipment, fittings, or outfit other than that specified, the Contractor shall first inform NCDOT of the details of the intended purchase, and secure specific written approval in each such instance.

The Contractor shall, at a minimum, develop detailed purchase technical specifications for the

following major equipment and systems:

- (a) Propulsion engines
- (b) Reduction gears
- (c) Waterjets
- (d) Ship service generators
- (e) Ship service switchboard
- (f) Control systems
- (g) Alarm and monitoring systems
- (h) Fire suppression system
- (i) Shafting
- (j) Propulsion Exhaust System

For all other equipment, purchase orders shall be submitted for review by NCDOT. This includes all fans, pumps, electrical and electronic equipment, pipe, valves, pipe components, propulsion shafting components, bearings, couplings and components, paint and vinyl, windows and doors.

Deliver electronic copies, in PDF format, of all vendor drawings or documents to NCDOT no later than the date the equipment is delivered to the Contractor's facilities.

Furnish a copy of all correspondence and technical data affecting design features of vendor items along with the submittal of the drawings showing these items.

A.9 WORKMANSHIP

(a) Workmanship throughout shall be first class and high grade in all respects for passenger vessels. Particular care shall be taken to insure fair lines, adequate and proper fastening, suitable butts and scarfs, smooth surfaces, neat and substantial work, and the maximum degree of water tightness. All welding shall be done by competent USCG/ABS certified welders. All plating shall be free of uneven and wavy lines or wrinkles after welding. (See paragraph A.27 herein also).

(b) The work shall be executed by competent workmen, in each trade, experienced in marine construction, and under adequate supervision to assure first class workmanship throughout.

(c) Ragged edges or sharp projections which are hazardous to operating personnel, contribute to additional maintenance, or detract from the finished appearance shall be eliminated.

(d) Dimensional tolerances, fit alignment, fairness and finish shall be in accordance with approved working plans. Where tolerances are not given on working drawings or specified elsewhere, a standard of plus or minus 1/16 of an inch will be assumed for unmachined fits. Machined fits shall be in accordance with S.A.E. Standards for tolerance and finish.

(e) Fittings at openings through decks and bulkheads for pipes, cables, etc., shall be properly designed to maintain watertight integrity, reduce transmission of heat and eliminate transfer of machinery vibration and noise to the hull structure. Doubler plates, inserts or other suitable strengthening shall be fitted at all bulkhead and hull penetrations.

(f) Piping and cables shall be run as indicated on plans and shall pierce the bulkheads as close under the decks and as near the top of the bulkheads as practicable.

A.9-1 ON SITE PROJECT SUPERVISION

(a) At all times that work is actually being performed, the Contractor shall have present on the project one competent individual who has been authorized to act in a supervisory capacity over all work on the project including work subcontracted. This individual who has been so authorized shall be experienced in the type of work being performed and is to be fully capable of

managing, directing and coordinating the work; of reading and thoroughly understanding the contract; and of receiving and carrying out directions from the Inspector. He shall be an employee of the Contractor.

(b) The project Supervisor shall be authorized to accept and sign for notices and instructions, if and when found necessary, from the Inspector.

(c) The Project Supervisor shall be identified at the time of the Pre-construction Conference, Section A.7-3, and shall meet with the Inspector's approval. Should it become necessary to assign another individual in this position, the Contractor shall provide the Inspector written notification within five (5) working days of the proposed change. The individual assigned shall be approved by the Inspector and shall be capable of assuming the duties as outlined in Section A.9-1 (a) and (b) herein.

A.10 PLANS AND SPECIFICATIONS

(a) All work shall conform to these specifications, the plans, the Notice to Bidders and the Bid Proposals, which are made a part hereof by reference.

(b) The plans and these specifications are to be considered as mutually explanatory or supplementary, and any feature shown on one and not on the other shall have the same force and effect as though shown on both. Should any discrepancy appear or any misunderstanding arise as to the importance of anything contained in them it shall be called to the attention of the Marine Engineer or Inspector immediately, and no further work performed on the item in question until a decision is reached. Work performed based on such an error, omission, discrepancy or lack of clarity shall be at the Contractor's risk and expense. These plans and specifications shall be used by the Contractor as guides in the prosecution of the work required.

(c) The following plans will be furnished by the Owner to the Contractor: (List of plans is attached ahead of the Technical Specifications). These drawings were produced by computer aided drafting methods. CAD drawings were developed using AUTODESK, AutoCAD Release 2016.

(d) Contract Plans **HAVE NOT BEEN** submitted to the U.S. Coast Guard for approval. However, they have been stamped by a P.E. from EBDG and are thought to conform to all requirements.

(e) It is expressly understood that the Contractor shall verify all quantities and figures will be held responsible for the proper coordination of all dimensions and the work, and that the furnishing of the drawings herewith will not relieve the Contractor from responsibility for errors or omissions in dimensions and quantities. No addition to the cost will be entertained for errors, omissions or for discrepancies found between actual details and the plans and specifications after the proposal has been received.

(f) The Owner reserves the right to alter the drawings to correct or avoid impossible conditions created by prosecution of the work. The alterations necessary in the work, if any, are to be made by the Contractor without additional cost to the Owner.

A.11 DETAIL WORKING DRAWINGS

(a) Detail working drawings shall be prepared in accordance with owner prepared Contract drawings list provided in section 030 of the Technical Specifications. Two (2) copies of each contractor prepared and/or revised drawing shall be submitted to the owner for review and comments. Owner comments, if any, shall be incorporated in drawings and two (2) copies re-

submitted to the Owner for final approval prior to submittal to U.S. Coast Guard Marine Safety Center, Washington, D.C. if required. Owner's drawing review action can be expected in one of the following manners:

(1) "APPROVED" - Drawing is acceptable and ready for U.S. Coast Guard review and/or for construction.

(2) "APPROVED SUBJECT TO COMMENTS" - Owner's comments shall be included on drawing at next normal issue, U.S. Coast Guard submittal or issue for construction.

(3) "RETURNED FOR REVISION" - Drawing is not in accordance with contract specification and/or applicable regulatory body (U.S. Coast Guard EEE45, etc.) rules and regulations. Drawing shall be revised resubmitted to owner for approval prior to issue and/or Coast Guard submittal.

(4) "REJECTED" - Drawing is not in compliance with Contract Specific and shall be redeveloped and resubmitted to owner for review.

(5) "EXAMINED" - Plans, calculations, sketches, etc., are found to be in accordance with contract specifications and do not require specific Owner approval. General data of this nature is supporting documentation.

(b) Contractor shall provide all engineering services necessary for the development and construction of the vessel, including technical calculations, and prepare and submit to the Engineer two (2) copies each for his approval all calculations, shop and working drawings as required. Working and shop drawings will be reviewed, and approved, or returned for correction, as promptly as the conditions will permit. No deviations from approved working drawings shall be made without the written approval of the Inspector.

(c) Plans/Drawings shall be prepared by the Contractor's Engineering Design personnel or by subcontract with an approved Engineering Design Agent. All plans shall be prepared using AUTODESK, AutoCAD Release 2016. All plans shall be revised providing details, assembly arrangements and material list to indicate "as built" condition. AutoCAD original drawings shall reflect all changes to "as built" conditions. AutoCAD drawings shall be REPLOTED on plain bond paper in accordance with Section A.11 (d) herein.

(d) Original drawings shall be of uniform size 24"x 36" (arch size D) prepared on 20 lb. plain bond paper and to comply with sample format for title block etc. as provided to the contractor. All original drawings shall be capable of reproduction in clear and legible copies. Drawing number sequence shall be maintained in accordance with Owner furnished drawings. Original drawings prepared by the Owner and identified in the list ahead of Part II shall be provided to the contractor. Drawings shall be revised for resubmittal to the U.S. Coast Guard, if required and to reflect final "as built conditions". All drawings shall be stamped to indicate final U.S.C.G. approval date and letter file number. One (1) copy of all Contractor and Coast Guard correspondence relating to plan approval shall be submitted to the Owner and Inspector in PDF format.

(e) In developing the working plans and detailed design, the Contractor shall adhere to all salient features and characteristics embodied in the specifications and plans, and the intent thereof. Modifications to the drawings which become necessary during development, or which may be sired by the Contractor to suit his standard practice, shall be brought to the attention of the Inspector at the time of submittal of working drawings for approval. Failure to notify the Inspector of such modifications will not constitute approval even though the working drawing was approved.

(f) Within twenty (20) calendar days after execution of the Contract, the Contractor shall submit a Plan Schedule of working drawings for approval by the NCDOT Representative. The

Plan Schedule shall list all drawings and documents required for submittal in this Specification and Contract Guidance Drawings and as required for all regulatory approval requirements. The schedule shall be submitted as a PDF file and as an Excel spreadsheet. The schedule shall include the following:

- (1) A drawing number for each drawing listed.
- (2) The drawing title.
- (3) The scheduled date the drawing will be submitted by the Contractor for approval to NCDOT.
- (4) The scheduled date the drawing will be submitted by the Contractor for approval by the regulatory agencies.
- (5) Columns for recording the actual date of the initial submittal, the dates for approvals, and a column showing the current letter revision of each drawing.
- (6) A list of drawings prepared by all subcontractors and vendors.

The Contractor shall revise and submit the Plan Schedule by the first of each month to show all changes, progress, and delays. Upon completion of the vessel and prior to delivery to NCDOT, the Contractor shall furnish a final copy of this schedule to the NCDOT Representative.

(g) The Inspector will cooperate with the Contractor in developing a plan approval procedure in order to expedite plan approval with minimum delay. Approval will be given subject to correction by the Contractor of any errors, omissions, and/or interferences contained thereon and compliance with the plans and specifications as previously noted. All revisions made to approved working plans shall be concisely described in a suitable revision column and copies forwarded to the Inspector for comments. Such revisions shall not negate the intent of the original approval without written consent of the Owner.

(h) Upon completion of the contract and at time of vessel delivery, all original drawings and CD's shall become the property of the North Carolina Department of Transportation and it is understood that the Department of Transportation shall reproduce and issue above noted drawings in any manner for future use. One (1) set of the final approved copies and one (1) set of as-built originals shall be delivered with the vessel along with one (1) copy in PDF format on a thumb drive. Each set of drawings shall be individually packaged or boxed and shall be labeled as to contents. A list of drawings shall be included in each set.

(i) Shop sketches and templates shall be prepared by the Contractor as required for his shop use. One (1) copy of shop sketches shall be provided to the Owner on 20 lb. plain white bond paper along with one (1) copy in PDF format on a thumb drive. Each set of drawings shall be individually packaged or boxed and shall be labeled as to contents. A list of drawings shall be included in each set.

(j) The Contractor shall keep, on the work site, a copy of the drawings (latest revision) and specifications including all authorized supplemental agreements and shall at all times give the Owner and their authorized representatives access thereto. All drawings and specifications, except the signed contract, shall be returned to the Owner at the completion of work.

A.12 ALTERATIONS (CHANGES)

(a) The Owner reserves the right to make any deletions or additions to the work to be performed without invalidating the contract, or giving notices to the sureties. Any change in cost due to alterations or deletions shall be negotiated prior to accomplishment, or performed on a time and material basis as hereinafter provided in this section, at the Owner's option, and approval of

any such changes shall be authorized by the Owner and accepted by the Contractor in writing on the Standard form provided prior to start of the work. Optional items, if any, may be approved by issue of a supplemental agreement by the Owner at the cost quoted therefor.

(b) In making any alteration on a time and material basis, the charge or credit for the change shall be determined by the labor rates submitted with the bid proposal and purchase orders for materials to be used. Material shall be at invoiced cost to the Contractor plus 15%. Deletion of equipment and/or material is to be negotiated on a cost of material and labor estimated basis.

(c) The Contractor shall, within five (5) working days, when required by the Owner, furnish to the Owner an itemized breakdown of the man-hours, quantities, and prices used in computing the value of any change that might be ordered. The above shall be published using Microsoft Excel Spreadsheet. All material shall be broken down (itemized) when pricing. The above shall only be approved in a Supplement Agreement signed by both parties.

(d) The completion date will be changed to cover additions to, or deletions from the contract, on a negotiated basis. (Paragraph A.7 (d) is to be used for guidance).

(e) The Contractor may not substitute other material for that specified, except as covered by Paragraph A.8 herein.

A.13 CONTRACTOR'S AND SUBCONTRACTOR'S INSURANCE

(a) The Contractor shall not commence work under this contract until he has obtained all the insurance required here under and such insurance has been approved by the Owner; nor shall the Contractor allow any subcontractor to commence work on his subcontract until all similar insurance has been so obtained and approved. Approval of the insurance by the Owner shall not relieve or decrease the liability of the Contractor hereunder.

(b) COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE

The Contractor shall take out and maintain during the life of this contract the statutory Workmen's Compensation and Employer's Liability Insurance for all his employees to be engaged in work under this contract and in case of any such work is sublet, the Contractor shall require the subcontractor similarly to provide Workmen's Compensation and Employer's Liability Insurance for all of the latter's employees to be engaged in such work and shall save the Owner harmless.

(c) BODILY INJURY LIABILITY AND PROPERTY DAMAGE LIABILITY INSURANCE

The Contractor shall take out and maintain during the life of this contract such Bodily Injury Liability and Property Damage Liability Insurance as shall protect him from claims for damages for personal injury, including death, as well as from claims for property damage, which may arise from operations under this contract whether such operations be by himself or by anyone directly or indirectly employed by either of them, and shall save the Owner harmless.

(d) INSURANCE ON VESSEL

The Contractor shall, at his expense, from the time construction starts at his facility to the time of final acceptance at Hatteras, N.C. after completion of all work and testing, furnish all risk insurance as provided in American Institute Builder's Risk Form dated February 8, 1979, amended by striking out line 217 covering the value of the vessel in the full amount and shall save the Owner harmless from any damage whatsoever while the vessel is in custody of the Contractor. The insurance shall be in a responsible company or companies authorized to transact such business in the State in which the construction is being accomplished, and in the State of North Carolina. A statement agreeing to accept service of legal action in North Carolina must accompany the policy.

The policy shall be made payable to the Owner. Where the Contractor carries a blank plant policy a rider must be obtained designating the Owner as first beneficiary under the policy in the amount stated.

For the purpose of this Contract the value of the vessel shall be placed as the Total Bid Amount.

A.14 ACCIDENT PREVENTION

Precaution shall be exercised at all times for the protection of persons, including employees, and property. The safety provisions of applicable laws shall be observed. Machinery equipment and all hazards shall be guarded or eliminated in accordance with the best marine construction safety practices.

A.15 SUBCONTRACTS

The Contractor shall not sublet, sell, transfer, assign, or otherwise dispose of the contract or any portion thereof; or of his right, title, or interest therein; without written consent of the Engineer. In case such consent is given, the sublet work shall be performed by the Subcontractor unless otherwise approved in writing by the Inspector. A firm which has been disqualified because of its failure to maintain satisfactory progress will not be approved as a subcontractor until the firm demonstrates the ability to perform the work in a satisfactory manner. Contractor shall submit a certified copy of the actual subcontract agreement executed between the Contractor and Subcontractor prior to written consent being issued by the Inspector. In case such consent is given, the Contractor will be permitted to sublet a portion thereof, but shall perform with his own organization, work amounting to not less the 75 percent of the total original contract amount.

Extra work performed in accordance with Section A.12 will not be considered in the computation of work required to be performed by the Contractor.

An assignment by operations of law or assignment for the benefit of creditors, or the bankruptcy of the Contractor, shall not vest any right in this contract in the Trustee in bankruptcy, the Contractor's creditors, or the agent of the creditors.

A Subcontractor shall not sublet, sell, transfer, assign, or otherwise dispose of his contract with a Contractor or any portion thereof; or of his right, title, or interest therein; without written consent of the Inspector. When directed by the Inspector, the Contractor shall submit a certified copy of the actual subcontract agreement executed between the Subcontractor and the Second Tier Subcontractor. In the event of an assignment by operations of law or the bankruptcy of the Subcontractor, the Contractor shall have the right, power, and authority, in its discretion, without violating the contract or releasing the surety, to terminate the subcontract. An assignment by operations of law or assignment for the benefit of creditors or the bankruptcy of the Subcontractor shall not vest any right in this contract in the Trustee in bankruptcy, nor the Subcontractor's creditors or agents of the creditors.

Neither the Contractor, nor any Subcontractor, shall enter into any written or oral equipment lease or rental agreement, materials purchase agreement, and/or labor agreement which circumvents the provisions of this article.

If the Contractor or a Subcontractor enters into a lease or rental agreement for equipment based upon payment for a unit of work, such agreement will be considered subletting of the contract unless the lease or rental agreement is with a commercial equipment company, manufacturer, and/or commercial leasing agency and such firm has been approved by the

Inspector. An equipment lease or rental agreement which is based upon unit price per unit of time will not be considered subletting of the contract.

The approval of any subcontract will not release the Contractor of his liability under the contract and bonds, nor will the Subcontractor or the second tier Subcontractor have any claim against the Department of Transportation by reason of the approval of the subcontract.

The Contractor shall as soon as practicable after the signing of the Contract, notify the Owner in writing of the names of the Subcontractors proposed for parts of the work and shall not employ any that the Inspector may within a reasonable time object to as incompetent or unfit.

The Contractor agrees that he is as fully responsible to the Owner for the acts and omissions of his Subcontractors and of persons either directly or indirectly employed by them, as he is for the acts and omissions of persons directly employed by him.

Failure of the Contractor to comply with any of the provisions of this article may be justification for disqualifying the Contractor from further bidding in accordance with the provisions of Section A.2-11.

A.16 PROTECTION AND CUSTODY OF VESSEL

(a) The Contractor shall take suitable means of protecting the vessel, the engines, and all other machinery, outfit, equipment, piping, wiring, etc. from the start of construction and until the vessel is accepted by the Owner, and he will be held responsible for any damage that may be sustained during this period. (See paragraph A.13 herein also).

(b) The vessel is agreed to be in the custody of the Contractor from the start of work at his plant until the completion of the vessels, including the tests and trials if required by the Technical Specifications herein, and until delivery to the Owner.

(c) The Contractor shall keep all litter and debris removed from the vessels, and shall conform to normal standard safety practices in the prosecution of the work and condition of the shipyard area.

A.17 MATERIAL FURNISHED BY OWNER AND TO BE RETAINED BY OWNER

(a) The Contractor shall receive, handle, and install all Owner furnished material and equipment, if any, and shall provide the required foundation, piping, wiring, etc., to make a complete and satisfactory installation at no additional cost to the Owner as a part of this contract.

A.18 HAULING AND LAY-TIME

(a) The Contractor shall provide a suitable safe means for hauling the vessel and sufficient lay days to complete all work as required, or that may become necessary.

(b) The vessel shall enter the drydock or railway without list and without excessive trim. If any strain or possible damage to the vessel be suspected or observed, the docking operation shall be suspended and necessary corrective measures taken. Blocking and shores shall be arranged in accordance with standard practice, leaving room in way of water jet thrusters, and other obstructions. The vessel shall remain on the drydock or railway until the underwater work has been satisfactorily completed, then it shall be carefully undocked.

A.19 RAILWAY CERTIFICATION

Upon award of the contract, the Contractor shall submit to the Ferry Division Engineer, a certificate of condition and capacity of Railway, Crane, Travel Lift or Drydock intended for use

during docking if required. Certificate shall indicate capacity, maximum width, and condition of facility which has been inspected within 30 days of bidding by a Certified Marine Inspector or Registered Professional Engineer.

A.20 GUARANTEE

(a) The Contractor shall guarantee all materials furnished and all workmanship performed by him under these specifications for a period of twelve months following final acceptance date by the Owner. This guarantee shall be limited to replacement (including labor) of any parts giving out under normal service because of defect in material or workmanship, and not because of carelessness or neglect on the part of the Owner, his officers or agents; provided further, that any work necessary under this warranty shall be performed without delay by the Contractor at a shipyard or such other place as may be approved by the Owner, and said Contractor shall not be liable for any expense or damages other than as herein called for above. The regular manufacturer's warranty shall be furnished with all equipment, machinery, fitting, etc., provided by the Contractor.

(b) Manufacturer's warranties shall be filed by the Contractor for all equipment provided and installed and said warranties shall be transferred and/or filed in the Owner's name for all equipment, machinery, fittings, etc.; regular warranty periods will apply for all component items not hereinafter listed.

(c) The Contractor shall make good all damage to the vessel or its equipment or contents thereof, which is the result of the use of materials, equipment or workmanship which are inferior, defective, or not in accordance with the terms of the contract and shall restore all disturbed work resulting from the same.

(d) If the Contractor, after notice, fails to proceed promptly to comply with the terms of the guarantee, the Owner may have the defects corrected and the Contractor and his surety shall be liable for all expenses incurred.

(e) All special guarantees applicable to definite parts of the work that may be stipulated in the specifications or other papers forming a part of the contract shall be subject to the terms of this paragraph during the life of such special guarantees. **All guarantees shall begin on the date of final acceptance by the Department.**

A.22 CERTIFICATES, DOCUMENTS, ETC.

(a) Upon completion of vessel and prior to acceptance the Contractor shall turn over to the Owner "Consent of Surety," "Affidavit of Payment of Labor and Materials" which shall include a list of material and equipment that is unpaid, waivers from suppliers and a statement that the vessel is free and clear of all liens, all certificates listed on CS-31, *Required Certificates*, unless shown as "Owner Furnished", and any other documents called for in other paragraphs herein.

(b) Upon completion of the vessel and after it is delivered, the Owner shall turn over to the Contractor a (notarized) certified statement (that all work required by these specifications, including any extra work is complete and satisfactory on the date of delivery. This statement in no way affects or reflects on the guarantee covered herein.

A.23 DELIVERY

(a) The vessel shall be delivered by the Contractor to the Owner at the North Carolina State Shipyard, located at 8550 Shipyard Road, Manns Harbor, North Carolina 27953.

(b) The Owner shall upon delivery turn over to the Contractor all documents required by these specifications, (paragraph A.22(b)).

(c) The Contractor shall upon delivery turn over to the Owner all documents required by these specifications (paragraph A.22(a)).

A.24 ACCEPTANCE

When the trials and all tests have been made, and all work completed to the satisfaction of the Owner, the vessel will be formally accepted by the Owner after delivery upon presentation of all necessary documents as described herein. See section A.39 for final acceptance requirements and permanent USCG COI at owner's facility in Manns Harbor, NC. All vessel items must be 100% complete prior to acceptance.

A.25 FAILURE TO RECOGNIZE

Failure of the Contractor to recognize the need for performance of work or furnishing of materials required to complete the vessel in accordance with the true intent of these specifications shall not be grounds for additional payments or charges under this contract or these specifications.

A.26 PATENT RIGHTS

The Contractor shall pay all royalties and assume defense and indemnity and save harmless the Owner and his officers, from any patent infringements.

There is no knowledge of any infringement.

A.27 WELDING

(a) Qualifications of Welders

All welding performed under this specification shall be done by welders holding a valid qualification certificate issued by the U. S. Coast Guard, or the American Bureau of Shipping, for the class of work to be accomplished. A list of welders and their certification shall be provided to the Owner. List shall be updated as required.

Qualified welding supervisors shall be employed to assure conformity with standards of workmanship required.

(b) Standards

In general, the design of joints and the amount and type of welding shall conform to Rules for Materials and Welding 2013, Part 2, Aluminum and Fiber Reinforced Plastics (FRP), Rules for Building and Classing High-Speed Craft (2017). A more detailed description of the workmanship required can be found under Chapter 52 (Ships) Third Edition of the Welding Handbook, published by the American Welding Society. Electrodes used for welding shall be of type approved by the U. S. Coast Guard for the various types of materials to be welded. Plates shall be smooth and free from wrinkles, uneven joints, wavy surfaces, etc.

No welding is to be done on hull plating below or near the waterline while the vessel is afloat. Welds shall be uniform and properly sized. Unsatisfactory welding shall be removed, ground smooth and re-welded in a satisfactory manner.

The striking of an arc on any principal hull plate surface is prohibited unless the plate surface on which the arc is struck is to be incorporated in a welded joint. Marks left by an accidental striking of an arc shall be ground out to a smooth contour, taking care that the plate thickness is not reduced more than ten (5) percent. Arc marks which exceed ten (10) percent of the plate thickness shall be reported at once to the Inspector, and corrective action taken as he directs. U.S. Coast Guard and/or ABS approved welding procedures shall be provided prior to starting construction.

Hull Protection - The Contractor shall maintain rigid control of welding and grounding for protection of the hull, its systems and appendages during the entire time the vessel is in the custody of the Contractor. Grounding connections shall be bolted as opposed to clamped.

A.28 CARE DURING CONSTRUCTION

All parts of the vessel, including, but not limited to, structure, deck coverings, fittings, equipage, outfit, furniture, insulation, paint work, machinery, auxiliaries, appliances and apparatus, shall be maintained in satisfactory condition during the entire period of construction and fitting out. All dirt, chips, and scrap material shall be cleaned out at frequent intervals during construction, and no water shall be allowed to remain in the vessel. The vessel must be thoroughly cleaned throughout at the time of delivery to the Owner. Special measures shall be taken to minimize damage incident to storage, installation and construction and to prevent corrosion or other deterioration, especially to all unpainted, polished, and moving parts. All defects, damage, and deterioration of the vessel, its parts, fittings, and outfit that occur before acceptance of the vessel shall be corrected and repaired by the Contractor at his expense. Equipment, prefabricated parts, furniture, and items such as life floats, lines, and canvas, which are stored in warehouses or on piers during the construction period of the vessel, shall be thoroughly examined for and rid of rats and vermin before being placed on board.

Fire Protection - During construction, flammable material shall not be stored onboard the vessel in such a manner to create a serious fire hazard. The Contractor shall exercise special care to prevent the possible outbreak of fire.

Where hot work is being carried out in the vicinity of combustible material, a fire watch whose sole purpose shall be to watch for fires and keep firefighting equipment on hand shall be constantly on duty.

A.29-1 PAYMENTS AND ACCEPTANCE

(a) Payments shall be made as set out in the Contract.

(b) All material and work covered by partial payments made shall thereupon become the sole property of the Owner, but this provision shall not be construed as relieving the Contractor from the sole responsibility for all materials and work upon which payments have been made or the restoration of any damaged work or any responsibility of the Contractor as herein set forth or as a waiver of the right of the Owner to require the fulfillment of all of the terms of the Contract.

(c) The final payment will not become due until the Contractor shall deliver to the Owner through the Inspector, Consent of Surety for final payment and an Affidavit of Payments of Claims that all subcontractors and suppliers of either labor or materials have been paid all sums due them for work performed or materials furnished in connection with this Contract or that satisfactory arrangements have been made by the Contractor with such subcontractors and suppliers with respect to the payment of such sums as may be due them by the Contractor (See paragraph A.35 also).

(d) ACCEPTANCE OF FINAL PAYMENT CONSTITUTES RELEASE

No certificate for payment issued by the Inspector and no payment, final or otherwise, nor partial or entire use or occupancy of the work by the Owner, shall be an acceptance of any work or materials not in accordance with the contract, nor shall the same relieve the Contractor of responsibility for faulty materials on workmanship or operate to release the Contractor or his surety from any obligations under the contract or the Performance Bond. North Carolina *General Statute 136-29 (2)* applies.

A.29-2 PAYMENT SCHEDULE

Note – Partial payments will be processed based upon progress estimates as prepared by the Engineer in accordance with the following payment schedule and Section 109-4 of the Standard Specifications.

<u>Event</u>	<u>Description of Event</u>	<u>Percent of Contract Amount</u>
1.	Written Receipt of Notice from Contracting Office & Pre-Con meeting	10%
2.	Completion of Engineering and USCG MSC approval of plans.	5%
3.	Hull Fabrication and Erection complete and signed off by USCG and Owner	10%
4.	Superstructure Fab. and Erection complete on Hull and signed off by USCG and Owner	5%
5.	Hull Welding complete and signed off by USCG and Owner	5%
6.	Superstructure Welding complete and signed off by USCG and Owner	5%
7.	Stairways, Ladders & Handrails erected complete and signed off by USCG and Owner	5%
8.	Doors, Windows & Manholes installed and signed off by USCG and Owner	5%
9.	Piping fabricated and installed complete and signed off by USCG and Owner	5%
10.	Main Engines, Gears, Thrusters and Gen. installed and signed off by USCG and Owner	5%
11.	Propulsion Shafting installed and signed off by USCG and Owner	5%
12.	Electrical Components and wiring complete and signed off by USCG and Owner	5%
13.	HVAC, Interior and Exterior Outfit complete and signed off by USCG and Owner	5%
14.	Electronics, Engine Controls and Steering complete and signed off by USCG and Owner	5%
15.	Fire, Safety and Life Saving complete and signed off by USCG and Owner	5%
16.	Vessel launched with dock and sea trials complete and signed off by USCG and Owner	5%
17.	Delivery of vessel to NCDOT with final COI by NC USCG and accepted by Owner	<u>10%</u>
Total		100%

A.30 CONTRACTOR'S TITLE TO MATERIALS

No materials or supplies for the work shall be purchased by the Contractor or by any subcontractor subject to any chattel mortgage or under a conditional sale or other agreement by which an interest is retained by the seller. The Contractor warrants that he has good title to all materials and supplies for which he accepts partial payment.

A.31 CONTRACTOR'S RIGHT TO STOP WORK OR TERMINATE CONTRACT

If the work should be stopped under an order of any court or other public authority for a period of three (3) months, through no act or fault of the Contractor or of anyone employed by him, or if the Inspector should fail to issue any certificate for payment within a reasonable time after it is due, or if the Owner should fail to pay to the Contractor within a reasonable time any sum certified by the Inspector, then the Contractor may, upon fourteen (14) calendar days of written notice to the Owner via the Inspector, stop work or terminate this contract and recover from the Owner payment for all work executed.

A.32 OWNER'S RIGHT TO TERMINATE CONTRACT

(a) If the work to be done shall be abandoned or if the Contractor should be adjudged a bankrupt, or if he should make a general assignment for the benefit of his creditors, or if a receiver should be appointed on account of his insolvency, or if this contract or any part thereof shall be sublet without previous approval of the Owners; or if this contract or any claim thereunder shall be assigned by the Contractor; if any materials or any tools, machinery or other equipment shall be attached or encumbered, which attachment or encumbrance remains undisolved for a period exceeding ten days; or if at any time the Inspector shall be of the opinion, and shall so certify in writing to the Contractor, that the said work is being unnecessarily delayed by the Contractor, or is not executing said contract in good faith, or is not making such progress in the execution of the work as to indicate its completion within the required time, or if he should persistently or repeatedly refuse or should fail to supply enough properly skilled workmen or proper materials, or persistently disregard laws, ordinances, or the instructions of the Inspector, the Owners shall have the power and right to notify the Contractor to discontinue all work or any part thereof under this contract and thereupon the Contractor shall discontinue such work or such part thereof as the Owner shall designate and the Owners shall thereupon have the power, by contract or otherwise as they may determine, to enter the premises of the Contractor where said vessel is being constructed and complete the work herein described, or such part thereof as they deem necessary; and to use such tools and other equipment and such materials of every description as may be found upon or designated to be used upon said work, and to procure additional tools and other equipment and additional materials for the completion of the same; and to debit to the Contractor the expense of labor and of additional materials and of additional tools and other equipment so procured, which additional tools and other equipment shall be and remain the property of the Contractor upon the completion of the work; and to credit him with the value of the work so done, as estimated by the Inspector.

(b) The excess of any cost to the Owners caused by or arising from its having taken over the completion of said vessel including compensation for additional inspection, managerial and administrative services shall be paid to said North Carolina Department of Transportation by the Contractor or by the surety on its performance bond, and in such accounting, the Owners shall not be held to obtain the lowest cost for the work of completing the contract, or any part thereof, but

all sums actually paid therefore shall be charged to the Contractor.

(c) It is further agreed that in case the Contractor shall not fully complete the contract work at the time stipulated, the Owners, in lieu of the foregoing provision, may at its option pay the Contractor for the parts already done, according to the provisions of the contract, and these specifications, and may treat and consider the parts remaining undone as if the contract was cancelled or abandoned by said Contractor or as if they had never been included in or contemplated by this contract.

(d) No action, proceeding or notice contemplated by the contract on the part of the Owners or Inspector and nothing herein contained shall operate as a waiver or release of any rights of the North Carolina Department of Transportation under this agreement against either the Contractor or its Surety.

(e) For purposes of the above "Abandonment of Work" shall mean any consecutive period of ten (10) calendar days without performance of work on the vessel by the Contractor.

A.33 CLIMATIC CONDITIONS

When so ordered by the Inspector, the Contractor shall suspend any work that may be subject to damage by climatic conditions existing or predicted for the area within 24 hours.

A.34 TAXES

The Contractor shall without additional expense to the Owner pay all applicable federal, state and local and other taxes which are assessed against this work.

A.35 ASSIGNMENTS

The Contractor shall not assign any part of the contract nor shall the Contractor assign any claim due under the contract or monies due or to become due under the contract.

A.36 SPECIAL NOTES

(a) All bidders are cautioned to clarify any questions prior to submission of proposal.

(b) The submission of a bid will be considered an acceptance of all requirements of these specifications and all governing laws and ordinances without exception.

(c) There may be requirements for manufacturers or their representative personnel to perform work on some items of the ship's equipment not covered by these specifications, while at the Contractor's plant. These persons shall be allowed access to the vessel during normal working hours to perform their work. The Contractor shall provide a reasonable amount of electric power for hand tools and light if required.

(d) Any questions concerning these specifications should be addressed to:

North Carolina Department of Transportation
Contract Standards and Development Unit
Century Center Building B
1020 Birch Ridge Drive
Telephone: (919) 707-6900
Fax: (919) 250-4127
Attn: State Contract Officer

(e) The Owners reserve the right to waive informalities or to reject any or all bids.

(f) All bidders shall be prequalified by the Department of Transportation at least two (2) weeks prior to bid opening.

(g) Proposals received after the date and time set for the opening regardless of the cause will be returned unopened.

(h) COAST GUARD inspection of this vessel is required during construction and at final delivery to Owner.

A.37 GUARDING

All moving parts of machinery, shafts, etc., shall be shielded to prevent injury to personnel. Shielding fitted on items requiring frequent attention shall have doors, covers or be readily portable.

A.38 QUALITY CONTROL

(a) A competent employee of the Contractor, satisfactory to the Owner, shall from the start of work until the completion of the vessel, maintain quality control over the job. He shall make such inspections and investigations as are necessary to insure that the quality of workmanship, materials and testing is in accordance with that specified.

(b) The quality control employee shall prepare and maintain records of his actions, provide copies to the Inspector and cooperate with the Inspector.

(c) The Inspector shall have access to the quality control employee and his records at all reasonable times during working hours.

A.39 CONTRACT TIME

Contract time shall be the number of calendar days inclusive between the date of availability and the completion date, said dates as being set forth below, including authorized extensions to the completion date.

Date of Availability for this contract is: JUNE 1, 2017.

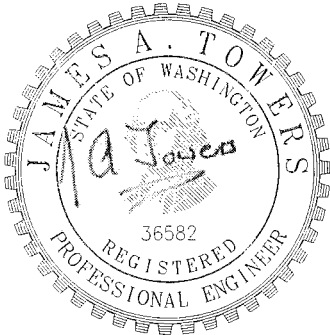
Final contract completion date for this contract is: 12:00 Noon April 28, 2018.

The completion date shall include at least five (5) working days of Contractor's representative(s) at Manns Harbor, N.C. to provide operational instructions to Ferry Division personnel prior to final acceptance. Local USCG OCMI shall provide permanent COI before vessel can be accepted. The OWNER shall provide vessel crew and fuel for test and operation of vessel prior to acceptance by Owner.

REQUIRED CERTIFICATES: (46 CFR Subchapter T, High Speed Passenger Ferry on Lakes, Bays and Sounds of NC)

List of certificates or letters:

1. Tonnage Certificate to include both international and US Regulatory tonnages.
2. Builder's Certificate (required to obtain Certificate of Documentation by Owner).
3. Steel Certificates for domestic US steel to include Origin, Heat Number, Size of member and Quantity.
4. Engine Manufacture Certificates by ABS.
5. Reduction Gear Manufacturer Certificates by ABS.
6. Thruster unit Certificates ABS or Lloyds.
7. Stability Letter USCG
8. Stability Data Package USCG stamped included Tank Tables.
9. Temporary Certificate of Inspection COI by USCG OCM I at vessel origin
10. Permanent Certificate of Inspection COI by USCG OCMI NCDOT
11. FCC Bridge to Bridge Radio Certificate (Owner Furnished)
12. FCC Radio Certificate (Owner Furnished)
13. Certificate of Documentation "COD" (Owner Furnished)
14. Certificate of Financial Responsibility "COFR" (Owner Furnished)
15. Certificate of Liability Insurance
16. EPIRB Registration Certificate [If required by USCG for delivery of vessel].
17. Consent of Surety Certificate
18. Certificate for Official Number [Documentation Center] (Owner Furnished)
19. EPA Response Plan (Owner Furnished)
20. Station Bill (Owner Furnished)
21. Security Certification (Owner Furnished)
22. Security Officer Certification (Owner Furnished)
23. Drug Testing Audit (Owner Furnished)
24. Drug Testing Proof List (Owner Furnished)
25. Vessel Response Plan (Owner Furnished)
26. DVTP and PSTP USCG Stamped for all equipment required by USCG,
(Main Engines, Gears, Thrusters, Steering, Engine Controls, etc.)
27. Payment of Final Estimate (NCDOT State Construction Engineer Furnished)
28. Life Raft Certificate (Dated within 30 days of vessel delivery date)
29. Letter of Payment Certification (Stating all vendors have been paid in full prior to vessel delivery)
30. Delivery and Acceptance Certificate
31. EPA NPDES Certificate (Owner Furnished)
32. Extended Warranty Certificate [Main Engines] 5 years
33. Extended Warranty Certificate [Thrusters] 5 years
34. Torsional Analysis (Engine, Gear, Shafting and Thruster Unit)
35. Right of Way Field Certification (Owner Furnished)
36. Portable Fire Extinguisher Certification (Including tags on each extinguisher).
37. Fire Extinguishing Flooding System Installation and Testing Certificate
38. Potable Water Tank Laboratory Testing Certificate
39. Horn Decibel Certification
40. Alternate Navigation Light Certificate (if required)



5/10/2017



5/10/2017

NORTH CAROLINA D.O.T. PEDESTRIAN FERRY

Technical Specifications

Prepared for: NCDOT • Raleigh, NC

Ref: 16109-003-802-0

Rev. B

May 10, 2017

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NCDOT

North Carolina D.O.T. Pedestrian Ferry

5/10/17

PREPARED BY

Elliott Bay Design Group – North Carolina, PLLC
5305 Shilshole Ave. NW, Ste. 100
Seattle, WA 98107

REVISIONS

REV	DESCRIPTION	DATE	APPROVED
-	Initial Release	03/03/2017	JAT 36582 BWK 29788
A	Incorporates NCDOT integration review comments	3/30/2017	JAT 36582 BWK 29788
B	Incorporates NCDOT Addendum 2 changes	5/10/2017	JAT 36582 BWK 29788

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000 GENERAL GUIDANCE AND ADMINISTRATION

It is the intent of this Specification and the accompanying Contract Plans to describe the construction of two aluminum, catamaran, passenger ferries to be built for the North Carolina Department of Transportation (NCDOT). The vessels are to be complete in all respects, fully equipped and fitted out in accordance with the Specification, and complying with all applicable requirements of the U.S. Coast Guard. It is not the intent of this Specification and the accompanying plans to cover every minor detail of construction and equipment. Therefore, any material or parts, the omission of which would be detrimental to the seaworthiness or serviceability of the vessels and the inclusion of which is generally accepted good shipbuilding practice, shall be provided by the Contractor to the satisfaction of the NCDOT's Representative and without increase in cost to NCDOT. The requirements of this Specification shall apply to each and every vessel constructed by the Contractor. Hereafter, wherever the Plans or this Specification refer to the vessel, boat or ferry as singular it shall be understood that the description is equally and identically applicable to two vessels.

010P RINCIPAL CHARACTERISTICS AND GENERAL DESCRIPTION

Length Overall (LOA)	92'-0"
Length on Design Load Waterline (LWL)	86'-9"
Beam (Molded)	26'-0"
Draft to Design Load Water Line (DLWL)	4'-0"
Complement	3 - 4 persons
Passengers	127 persons
Horsepower	3,200 hp
Service Speed	28 knots
Trial Speed	32 knots
Fuel Oil Capacity (95%)	2,200 gal
Potable Water Capacity (100%)	200 gal
Sewage Capacity (100%)	200 gal
Regulatory Gross Tonnage	Less than 100 GRT

The vessel is to be a catamaran, diesel powered, passenger ferry, outfitted for service between Hatteras Ferry Terminal and Ocracoke Silver Lake Ferry Terminal.

The vessel will be welded aluminum construction with longitudinal framing. There will be four (4) transverse watertight bulkheads in each demi-hull which extend to Main Deck.

Propulsion will be provided by four diesel engines driving four waterjet drives via reversible reduction gears. The vessel will be capable of reduced speeds with one engine out of service. Electric power requirements will be met by two diesel driven generators, one of which will be on standby during normal operations.

012DEF INITIONS

- | | |
|---|---|
| A. Owner, Owner's Representative, NCDOT or NCDOT Representative | Where the terms "Owner", "Owner's Representative", "NCDOT" or "NCDOT's Representative" are used, they refer to the North Carolina Department of Transportation, or its authorized representative who shall have exclusive authority to approve work performed, changes, substitutions, etc. |
| B. Contractor or Shipyard | Where the terms "Contractor" or "Shipyard" appear in this Specification, such terms refer to the individual, firm, or corporation undertaking the execution of the work under the terms of the Contract. |
| C. Naval Architect | Where the term "Naval Architect" appears in this Specification, this term refers to Elliott Bay Design Group – North Carolina, PLLC, Naval Architects and Marine Engineers (EBDG) |
| D. USCG | United States Coast Guard |

030CONTRACT AND CONTRACT GUIDANCE DRAWINGS

The vessel shall be built in accordance with the drawings listed below, which form part of this Specification. The precedence of the Contract Documents shall be as specified in the Contract between the Owners and the Contractor for the construction of the vessels. The Contract is the most senior document. The remaining documents in descending order of precedence are: the Specification, the Contract Drawings and the Contract Guidance Drawings.

The Contract Documents are intended to supplement each other. Items contained in one, but omitted from another, are intended to be provided and installed by the Contractor.

The shape of hull shall conform to the Lines Plan, and all lines shall be carefully faired. Except for fairing, the Lines Plan (a Contract Drawing) shall not be deviated from without prior written approval from NCDOT.

Changes to work shown on the Contract Guidance Drawings or in the Specification shall not be made without the written approval of NCDOT. The Contract Guidance Drawings show acceptable arrangements and features to guide the Contractor in the development of the additional details required for construction, and for regulatory agency and NCDOT approvals. The Contract Guidance Drawings are not intended to show a complete and detailed design. The Contractor shall develop the Construction Drawings as appropriate and as necessary for construction using the sources of information not available during contract design development including certified vendor drawings, templating from actual equipment,

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or using more detailed information provided by equipment vendors under contract to the Contractor. The Contractor may use the Contract Guidance Drawings as the basis for development of detailed design for construction and for regulatory approval as described in Sections 072 and 810 as appropriate.

Contractor-prepared Working Drawings and shop detail drawings required to perform the work shall be submitted to NCDOT for review and the regulatory agencies for their approval. Any work undertaken in advance of the receipt of approval by the Owner and by Regulatory Agency shall be at the Contractor's own risk. Approval of any Working Drawings shall not constitute approval to deviate from this Specification or Contract Guidance Drawings, unless the deviation is specifically pointed out to NCDOT and approval has been given in writing.

Piping systems are diagrammatic, hence the Contractor will be required to develop the systems and conduct an interference survey. Machinery and equipment have been arranged so to facilitate necessary equipment maintenance. The Contractor is cautioned to check and verify dimensions and sizes from the manufacturer's certified drawing or actual equipment to ensure that the customary growth in machinery size does not cause interferences. Changes in equipment size must be promptly called to the attention of NCDOT.

Drawing Number	Sheets	Title	Revision
<u>Contract Drawings</u>			
16109-003-100-1	3	Lines Plan	-
<u>Contract Guidance Drawings</u>			
16109-003-065-0	4	HVAC Block Diagram	-
16109-003-101-1	4	Profiles and Arrangements	-
16109-003-110-0	1	Midship Section	A
16109-003-120-0	9	Hull Structure	A
16109-003-130-0	6	Superstructure	A
16109-003-170-1	2	Propulsion Equipment Arrangement	A
16109-003-201-1	4	Machinery Arrangements	-
16109-003-259-1	4	Exhaust System	A
16109-003-261-0	1	Fuel, Water and Sewage Tank Configuration	-
16109-003-261-1	2	Fuel Oil Diagram	A
16109-003-320-0	5	Electrical One Line Diagram	A
16109-003-401-0	3	Pilothouse Arrangement	-
16109-003-520-0	4	Sea Chests and Seawater Piping	-
16109-003-521-0	2	Fire Main System	-
16109-003-528-0	2	Sanitary Drains and Sewage Discharge System	-

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North Carolina D.O.T. Pedestrian Ferry

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Drawing Number	Sheets	Title	Revision
16109-003-529-1	2	Bilge System	-
16109-003-529-2	3	Deck Drains	-
16109-003-533-0	2	Potable Water System	A
16109-003-601-0	2	Passenger Space Arrangement	-
16109-003-601-2	2	Food Services Arrangement	-
16109-003-631-0	1	Paint and Vinyl Layout	-
16109-003-635-0	2	Insulation and Linings Plan	A
16109-003-635-1	3	Ceiling and Lighting Plan	-

Electronic format, modifiable files of the above drawings will be provided to the Contractor for use on this project.

The following supporting documents and files will also be provided to the Contractor for information:

Document Number	Title	Revision
16109-003-100-2	3D Model*	
16109-003-061-0	Scantling Calculations	-
16109-003-300-0	Electrical Loads Analysis	A
16109-003-505-0	Mechanical Calculations	-
16109-003-802-1	Design Basis Equipment List	-
16109-003-833-0	Weight Estimate	-
16109-003-843-5	Stability Assessment	-

*The 3D Model is provided as a .3dm file constructed in Rhinoceros Version 5. It has been used to develop the design. It may not be complete and may not accurately represent the final design. It is provided to the Contractor for information only.

The design described by this Contract Specification and the above listed drawings and documents are proprietary to Elliott Bay Design Group – North Carolina, PLLC. They are assigned to the Contractor, its subcontractors, and agents for use in the construction of two ferries for NCDOT. They shall not be used in whole or in part for any other purpose. This restriction in use does not extend to design details wholly developed by the Contractor, its subcontractors, or agents that may be used in the construction of these ferries.

070REQUI REMENTS FOR DESIGN AND CONSTRUCTION**071Over head and Headroom Clearances**

Finished ceiling height shall be 7 feet, 3 inches above Main Deck. Minimum headroom for crew and passengers above Main Deck shall be 7 feet, 1-1/2 inches with the exception of the ceiling at the forward end of the passenger compartment which shall be as shown in the drawings.

Deviations may be approved on a case by case basis where this minimum headroom requirement is impractical. Headroom clearance below Main Deck, including the Engine Rooms, will be kept to the maximum height practical.

072G overnment Regulation and Other Requirements

The vessel will be designed and constructed in accordance with the applicable requirements of the United States Coast Guard (USCG) for Subchapter T vessels. The vessel structure shall be designed to comply with the requirements of Lloyd's Register Rules and Regulations for the Classification of Special Service Craft, 2016. Classification Society approval is not required.

The ferry will be delivered to the Owner, with a provisional USCG Certificate of Documentation and Certificate of Inspection, for service on "Lakes, Bays, and Sounds" as a Subchapter T passenger ferry. The Certificate of Inspection shall allow the ferry to operate with up to 100 passengers and four or less crew members.

A Certificate of Admeasurement for Regulatory Tonnage and International Tonnage Convention will be required. The Contractor shall contract with the American Bureau of Shipping or an equivalent classification society to obtain the Certificate of Admeasurement. The Contractor will assist and facilitate the work of the vessel admeasurers.

With the exception of the Owner's crew demonstrating familiarity with the vessel operation, lifesaving and firefighting, the Contractor shall be entirely responsible for obtaining all certificates and documentation, and provide all testing, failure analyses, components, and signage as necessary for the vessel to be put into passenger carrying service as described above.

The Contractor shall develop and submit all plans, details, calculations, material and equipment certification, documents and any other information to the USCG to obtain approval. All email and written correspondence to or from the USCG shall immediately be copied to the NCDOT Representative. Where an EBDG contract or contract guidance drawing has been developed for this project, the Contractor may submit it for USCG approval after it has been revised by the Contractor to include sufficient information and details required by the USCG for approval. Any such revisions shall be clearly and explicitly identified with a revision note and revision mark at the revision. The EBDG title block shall remain on all drawings utilized by the Contractor.

Fees entailed in securing certificates, including associated inspection fees and expense of regulatory body inspectors, shall be paid by the Contractor.

The applicable requirements of the various regulatory bodies and rules noted below, in force at the time of submission of bids, shall be complied with:

- A. 46 CFR Subchapter T: "Small Passenger Vessels (Under 100 Gross Tons)" and other applicable CFRs and USCG Navigation and Vessel Inspection Circulars (NVIC)
- B. Lloyd's Register Rules and Regulations for the Classification of Special Service Craft, 2015

- C. 23 CFR 635.410: "Buy America Requirements"
- D. IEEE Standard No. 45: "Recommended Practice for Electrical Installations on Shipboard"
- E. U.S. Public Health Service: "Handbook on Sanitation of Vessel Construction"
- F. World Health Organization
- G. Federal Communications Commission
- H. U.S. Access Board: Proposed Passenger Vessel Accessibility Guidelines

Many of these Plans have been submitted to the USCG for provisional review. The associated USCG Project Number will be provided to the Contractor when available. Physical change to the vessel, if any, that result from the USCG provisional review shall be communicated to the Contractor for incorporation into the detailed design and shall be submitted by the Contractor to the USCG for regulatory approval as described above. It shall be the Contractor's responsibility to make all review submittals. See Section 800.

073Vib ration and Noise

During sea trials, the Contractor shall conduct noise and vibration surveys in all the spaces listed in Table 1. All HVAC equipment shall be operating normally during the trials.

The vessel and components shall be free from excessive vibration. Vibration is excessive when it exceeds the explicit requirements given in Table 2, results in damage or clear potential damage to vessel structure, machinery, equipment or systems, or interferes with the proper operation of the vessel or components. Dangerous resonances at normal operation speeds will not be acceptable. The design speed of machinery shall not be reduced to avoid resonances.

The vibration limits in Table 2 apply specifically to the deck of passenger and crew working spaces. Vibration criteria are an overall, frequency weighted root mean square (RMS) value that is summed between 1 and 80 Hz, in accordance with ISO 6954:2000.

The vessel's local structure outside of the spaces listed in Table 2 shall have a single frequency peak response component, structural vibration velocity limit of 30 mm/s for structural response frequencies at or above 5 Hz. The NCDOT Representative may, at his/her discretion, approve vibration velocities in excess of 30 mm/s if the Contractor can satisfactorily demonstrate that vibration velocities in excess of this limit will not result in fatigue cracking or other structural damage.

The Contractor shall be responsible for locating and correcting unsatisfactory vibration or noise conditions arising during tests or trials, or subsequently during the guarantee period, which can be attributed to the design or construction of those elements provided by the Contractor.

Final vibration and noise reading locations and testing conditions shall be subject to approval by the NCDOT Representative.

Table 1: Noise Limits

Space	dB(A)
Main Deck Interior Passenger Area	74
Pilothouse	65

Table 2: Vibration Limits

Space	Vibration Velocity Limit (mm/s)
Main Deck Exterior Passenger Area	4
Main Deck Interior Passenger Area	4
Upper Deck Exterior Passenger Area	4
Pilothouse	4

074Weld ing

The Contractor shall develop a weld schedule using the Lloyd's Register Rules and Regulations for the Classification of Special Service Craft, 2015. Intermittent welding shall only be used where permitted by the classification society rules. Welds shall be smooth on appearance with a uniform cross section and the throat dimension shall not exceed class rules by more than 3/32 inches. Care shall be taken with stops and starts, crater cracks shall be ground out and re-welded. Tacks may not be incorporated into the final weld. Welds will be wrapped at all rat holes, snipes, edges etc. Backing bars shall be provided for all plug welds. Plug welds shall be minimum 3/4" wide and shall be filled with an epoxy fairing compound. Slot welds shall not be permitted without approval from NCDOT Representative.

Weld procedures shall be developed in accordance with the American Welding Society standards and all welders will be certified to the approved procedures by either USCG or a classification society. A welder's certifications shall be provided to the Owner's Representative prior to the welder working on the project.

The Contractor shall develop a USCG approved weld-testing program for the vessel including the acceptance criteria to be used. This program shall include a minimum of ten (10) hull seam radiographs (RT) to be taken early in the construction. In the event that a weld fails RT, the area shall be repaired and two additional radiographs shall be taken, the location to be decided by the USCG and the Owner's Representative.

The Contractor shall develop a list of all electronic and electrical equipment that could be damaged by welding operations on the vessel. This equipment shall always be disconnected during welding. Care shall be taken to correctly ground the hull during welding operations.

Plate welding shall be achieved with a minimum weld crown and shall not be sanded smooth.

078M Materials and Workmanship

The Contractor shall supply the necessary labor, material, skill, and equipment required to complete and test the construction of the vessel. All materials shall be new unless specific approval to the contrary is obtained from NCDOT in writing.

The work shall be complete in all respects. Anything inadvertently omitted from the Plans and this Specification that is necessary and usual to a complete vessel, shall be supplied as a part of this Contract. Materials used and the workmanship thereon shall be of the best description and quality throughout and of adequate sizes to accomplish the purpose intended. The work, in every respect, shall be made under the supervision and to the complete satisfaction of NCDOT and their Representatives.

Defects appearing at any stage of the work shall be cause for rejection even though the piece in question may have previously been passed as satisfactory.

Aluminum plates shall be 5083, H116 or H321 and 6000 T6 series aluminum shall be used for all extruded shapes.

Except where expressly stated in this Specification that a waiver is available for particular equipment or material item, the Contractor shall be responsible for complying with the governing "Buy America" requirements. Refer to Section A.8 for Buy America Compliance requirements.

Materials subject to test and inspection used in the construction of the vessel shall comply with the rules of the USCG.

Where fasteners, pipe, tube, sheet metal, or plates and shapes are described as being "stainless steel," marine grade 300 series stainless steel shall be used in all cases. Fasteners and piping shall be 316 or 316L stainless steel unless otherwise specifically stated in the Contract Specification and Contract Guidance Drawings.

079En Environmental Conditions

Machinery, structure, and outfit shall be designed to withstand the resultant forces from the following conditions of service environment:

- A. Permanent list of 10 degrees
- B. Permanent trim of 5 degrees
- C. Double amplitude roll of 15 degrees in a period of 5 seconds
- D. Double amplitude pitch of 10 degrees in a period of 5 seconds
- E. Worst case ambient air and seawater temperatures as tabulated below:

Parameter	Units	Summer	Winter
Air Temperature (dry bulb)	°F	88	28
Seawater Temperature	°F	85	40

080TEMP ORARY SERVICES

084Eq uipment Storage

All equipment purchased by the Contractor for use in the construction of the vessel shall be securely warehoused by the Contractor and segregated from other project's equipment. The equipment shall be kept in a covered, clean, dry environment of low humidity and relatively constant temperature (less than 30 degree +/- from a 70 degree ambient). Equipment requiring special handling by its manufacturer shall be stored in accordance with manufacturer's requirements. The NCDOT Representative shall be provided with access to stored equipment at any time upon his/her request. The Contractor shall adequately protect all equipment from overspray of solvents, paints, impact damage, and weld or cutting materials contact while in storage and onboard. Temporary fire resistant covers or enclosures shall be placed over all equipment where overhead or adjacent hot work is being performed. Scaffolding or work platforms shall be placed over equipment to stand on, or walk across for access overhead or beyond. The Contractor and subcontractors shall not ever stand on any equipment or furnishings to work overhead. The Contractor shall immediately comply with all directives as may be provided from NCDOT's Representative to protect or improve protection of installed equipment and components from physical damage.

095Own er Furnished Structural Lofting

A lofting package will be provided as "Owner furnished" (OFE) to the shipyard contractor. The Owners' Naval Architect will develop the lofting information for the vessel using ShipConstructor suite software (SC).

All major hull and superstructure decks, bulkheads, frames, shell plate, stiffeners and girders will be modeled in SC. Additionally engine foundations, fuel tanks, bulwarks, mast, and foundations for all major mission and propulsion machinery which are integrated into the vessel's primary structure will also be lofted. Minor secondary structure such as equipment and radar foundations and grating supports will not be lofted in this "Owner furnished" lofting package.

All major parts will include common waterline, buttock and/or frame references. Reference lines will be labeled accordingly. All major shapes will include end-cut and weld seam relief details.

Plates will be marked for all stiffeners, faceplates, etc. Stiffener marks will include end-nails indicating the extents of the stiffeners and marking the material throw direction. All rat-holes, limbers and water-stops will be lofted. Cutouts in structure for doorways hatches, manholes, and scuppers will be marked wherever exact equipment dimensional information is not available.

The Contractor will be supplied with nested plate DXF files. Standard stock reports identifying the stock type, length, and end cut details of each shape part will also be provided.

The lofting package will also include detailed SC generated weight reports for each block identifying the total aluminum weight and center of gravity. These reports will include weight information for each sub-assembly and part.

The lofting package will be completed and provided to the Contractor approximately one month after construction bid award. Any changes or additions to the OFE provided lofting package shall be the responsibility of the Contractor.

096Weight Control Program

Minimizing weight growth during construction is important. The Contractor shall not change the structural sizes, exceed the scantlings, or increase the pipe sizes and wall thicknesses described by the Contract Specification and Contract Guidance Drawings unless it can be demonstrated by the Contractor to be necessary for the suitability of the vessel for its service. Scantlings shall be kept to a reasonably minimum size for foundations, floor plate supports and other details developed by the Contractor.

The Contractor shall be responsible for preparing a builder's weight estimate. This estimate shall be submitted to NCDOT within forty-five (45) calendar days after the Contract award. The estimate shall be done in SWBS format, to facilitate comparison with the contract design weight estimate. The builder's weight estimate shall be developed and submitted in Excel format.

Disparities between the two estimates shall be identified and resolved, in order to establish an approved maximum vessel light ship weight. Throughout the construction period, the Contractor shall monitor the actual weight of equipment and materials against the weight estimate. The builder's weight estimate shall be updated and resubmitted twice monthly to the NCDOT Representative. All equipment shall be weighed upon receipt by the shipyard. Weight growth shall be brought to the attention of NCDOT. The Contractor shall be responsible for delivering the vessel within the limit of the agreed maximum light ship weight.

NCDOT and the Contractor shall conduct a weight survey at the time of launching to compare estimated weight at completion with the observed displacement.

099P hotographs

Submit a set of at least thirty-six (36) digital format (JPEG) progress photographs every two weeks during the construction period, illustrating the progress of the work. With the submittal provide a digital photo file index describing the date, subject, and location corresponding to each file name. Provide the file index and digital photo files as a USB drive and delivered via email as attachments to the Owner's Representative. Clearly label the USB drive with the date of the submittal.

100 HULL STRUCTURE, GENERAL

100.1 References

Reference ID	Number	Title
(1A)	16109-003-100-1	Lines Plan
(1B)	16109-003-101-1	Profiles and Arrangements
(1C)	16109-003-110-0	Midship Section
(1D)	16109-003-120-0	Hull Structure
(1E)	16109-003-130-0	Superstructure
(1F)	16109-003-170-1	Propulsion Equipment Arrangement
(1G)	16109-003-201-1	Machinery Arrangement
(1H)	16109-003-261-1	Fuel, Water & Sewage Tank Configuration and Structure
(1I)	16109-003-520-0	Sea Chests and Sea Water Piping

100.2 General Construction

The vessel shall be welded aluminum, catamaran type, longitudinally framed with transverse web frames at four-foot centers with longitudinal stiffeners.

The structural arrangement and scantlings reflected on the Contract Guidance Drawings have been designed in accordance with Lloyd's Register Rules and Regulations for the Classification of Special Service Craft, 2016. Scantlings specified on Contract Guidance Drawing that are in excess of the Lloyd's Rules shall not be reduced without permission of NCDOT.

The Contractor shall be responsible for adding brackets, chocks, and clips as required to develop the full strength of the members shown on the Contract Guidance Drawings and as required in accordance with Lloyd's Register Rules and Regulations for the Classification of Special Service Craft, 2016.

The Contract Guidance Drawings referenced by this section describe primary structure and are not intended to show all required structure. The Contractor shall be responsible for all minor structure including foundations, hangers, supports, framing, containment, enclosures and localized stiffening that may be necessary but not shown by the drawings. Lapped brackets shall not be used for structural members.

Plating for bulkheads, shell plating, and decks shall meet the fairness standards of ASTM Volume 01.07 "Shipbuilding" F-1053, unless otherwise noted in the Specification. NCDOT requires a delivered vessel that is not only structurally sound, but is also aesthetically pleasing. It is emphasized that fillers and coatings are no substitute for fair plate work as defined above. The use of coverings, fillers, etc. to mask unfair plate is unacceptable, and the Contractor must be

fully aware that repairs to bring plate within specified tolerances, including the removal and replacement of interferences and coatings which may be damaged during the repair process are to the Contractor's account. Plate in all areas will be inspected and measured for unfairness by the NCDOT Representative during all stages of the construction process. The shipyard shall not use weld shrinkage to improve fairness without permission of NCDOT Representative.

Efficient means of compensation shall be fitted where it is necessary to provide holes for passage of wiring, piping, or ventilation in main structural members.

Trunks and coamings in general shall be worked with corners rounded to approximately a 3 inch radius. Deck cuts shall have radiused corners.

Close attention shall be paid to the fabrication and installation of machinery foundations to ensure rigidity of the foundations and their continuity with adjacent structural members.

During construction, access shall be provided to all compartments and spaces for cleaning and inspection.

Limber and vent holes, 1- inch radius minimum, shall be cut as necessary to ensure proper venting and drainage of tanks, compartments, pockets and voids. Longitudinals shall not be fitted with rat holes but shall be welded full depth to transverse members. The side longitudinals shall be drilled with 3/8 inch diameter limber holes in each bay so that no fluid may be trapped above the longitudinal. Tanks shall have limber holes and vent holes of adequate size for full capacity flow to suction and vent lines. All structural members, including bottom and side shell longitudinals, shall be arranged so that there is good drainage and water cannot form puddles.

Sharp and ragged edges or corners of structure that could cause injury to personnel, interfere with subsequent coatings application, or which would be unsightly, shall be removed, ground smooth, or sniped. Weld spatter shall be sanded smooth.

Structural aluminum used for plating shall be 5083, H116 or H321. 6000 Series aluminum shall be used for all extruded shapes.

Where reinforcement is required in way of penetrations of decks, shell, bulkheads or framing members, the use of doubler plates shall be avoided in favor of insert plates or reinforcing rings. Wherever insert plates are used, rounded corners with a radius of not less than 3 inches shall be provided. Insert plate edges shall be tapered in thickness to minimize abrupt plate thickness changes.

Tanks shall be hydrostatically or pneumatically tested in accordance with USCG requirements after completion.

120HULL

120.1 Shell Plating

The thickness of the plating shall be as shown on the Contract Guidance Drawings. The boundaries of differing plate thickness shall be maintained as shown. Seams and butts shall be located to suit the Contractor's standard practice, subject to the approval of NCDOT's

Representative. Four-way joint intersections shall be avoided to the extent possible. Shell openings shall be compensated for with insert plates and radiused corners unless shown otherwise in the Contract Drawings.

120.2 Frames

Below the Main Deck, longitudinal frames shall be installed as shown on the Contract Guidance Drawings. Frames shall be efficiently bracketed to deck beams and floors where required.

120.3 Girders

Three (3) girders shall be fitted to each Engine Room as indicated on the structural drawings. These girders shall be continuous between watertight bulkheads and shall extend from just forward of the forward Engine Room bulkhead to the transom. These girders provide the support for the waterjets, main engines, generators and reduction gears. All welding in way of the machinery foundations shall be double continuous.

120.4 Bulkheads

Transverse and longitudinal bulkheads shall be located and constructed as shown on the Contract Guidance Drawings.

120.5 Hull Decks

Decks shall be constructed of scantlings indicated on the Contract Guidance Drawings. The Contractor shall provide under deck strengthening as required to spread the load to primary hull structure. Deck beams shall be of the scantlings shown and shall be either slotted through non-tight bulkheads and girders, or bracketed to each side. The Main Deck shall have no camber.

Insert plates shall be provided in way of bitts, davits and other areas subjected to increased loading.

120.6 Hull Lines

The shape of the hull shall conform to Reference (1A), Contract Drawing. The Contractor shall fair the hull lines and submit copies of the faired hull model in electronic format to NCDOT for approval prior to beginning fabrication.

150DECK HOUSE STRUCTURE

Fabricate the aluminum superstructure generally as shown on the Contract Guidance Drawings. Provide adequate support for plating during assembly and welding to minimize distortion. All plates shall be adequately stiffened to prevent vibration drumming with properly sized stiffeners. If a plate exceeds distortion limits, additional stiffening shall be added at no increased cost to NCDOT.

150.1 Bulwark

Aluminum bulwarks shall be installed on the Main Deck as shown on the Contract Guidance Drawings. The bulwarks shall be single-plate construction. Vertical bulwark brackets are to be fitted so as to align with side shell frame structure.

Bulwarks will have two (2), 4'-0" openings port and starboard, forward of the deck house for normal passenger loading. These openings will be equipped with gates, hinged to swing forward.

Bulwarks will have two (2), 4'-0" openings port and starboard, aft of the inclined ladders for egress. These openings will be equipped with gates hinged to swing aft.

All gates shall be equipped with 316SS hinges and lockable securing hardware.

Two (2) recessed pockets shall be provided at each opening to secure the Owner-furnished gangways.

The gates shall be integral portions of the bulwark, fitted with stainless steel hinges and lockable sliding latch. Nylon or similar bearing inserts shall be fitted in the hinges between rotating or sliding components. Gates shall be provided with a method for securing in the open position.

150.2 Pilothouse Visor

Provide and install a fabricated aluminum plate visor on the top of the Pilothouse as shown on the Contract Guidance Drawings.

150.3 Masts

Fabricate and install a fixed navigation light and radar mast as shown on the Contract Guidance Drawings. Develop the mast design based on the navigation light arrangement. The mast shall include navigation lights, radio antennas, radars, any other electronic component required, and a flag staff halyard. Structure shall be reinforced, as necessary, to provide a rigid, vibration free structure.

The mast shall be of aluminum construction. The lower mast shall be a minimum of 6 inches in diameter.

Exposed electrical cables on the mast shall be provided with watertight receptacles at each light fixture.

The mast and Pilothouse top shall include foundations for navigation lights, radio antennas, radars, and any other electronic components required.

160S SPECIAL STRUCTURES

160.1 Spray Rails

Spray rails shall be installed between Frames 16 and 21 on both port and starboard hulls, inboard and outboard. The spray rails shall be constructed from two (2) 1/4 inch aluminum plates. The spray rails shall be fitted as shown on the Lines Plan. Spray rail ends shall be cleanly feathered out.

The bottom plate shall be horizontal, extend 3-1/2 inches from the shell side, and shall be double continuously welded. The upper plate shall be continuously fillet welded to the shell and the top side of the bottom plate. Each aft spray rail end shall have a 1-inch plug for hydro-testing post

construction. The lower plate shall be angled down approximately three degrees from the horizontal.

163S ea Chests

Provide and install sea chests as shown on Reference (11). The vessel shall be fitted with five (5) sea chests: two (2) in each Engine Room, and one (1) in the Starboard Tank Room. Engine Room sea chests shall have bolted, perforated strainer plates, anodes, and suitable vents. Each sea chest will be fitted with an anti-fouling system; see Section 632.

Each sea chest shall be sized for the full capacity of all connected services. Strainer plate clear area shall be a minimum of three times the aggregate area of all connected seawater service pipes. Each Engine Room sea chest shall be fitted with a 5/16 in plate interceptor to maintain pressure.

180F FOUNDATIONS**180.1 Propulsion Machinery Foundations**

Foundations for the propulsion machinery shall be fitted as an integral part of the vessel's primary structure, as shown on the Contract Guidance Drawings. Abrupt discontinuities shall be avoided by gradual tapers at the extremities of foundation structure.

The propulsion machinery foundations shall be of a height to suit the engine and reduction gear alignment chocks. Welding of the engine and reduction gear foundations shall be double continuous.

180.2 Equipment Foundations

Design and install foundations for all machinery and equipment. Appropriate support structure shall be provided for all equipment, such as electrical panels and instrumentation, regardless of weight.

Foundation design shall provide adequate strength to support and maintain alignment of the mounted equipment in its operational mode, and stiffness to prevent excessive vibration. Loadings to be considered in design of foundations shall include the dry weight of equipment, weight of fluids, dynamic loadings induced by equipment in operation, weights of supported ancillary components and/or systems (e.g. wiring, piping, control equipment, safety shields) and ship motions.

Foundations shall be adequately supported by and braced to the vessel's structural members so that equipment loadings are properly distributed. Additional structural support members, headers and chocks shall be provided as required. Foundations shall not be attached directly to unsupported plate. Design of foundations shall provide for alignment and other special criteria, such as vibration limitations, as may be specified by the equipment manufacturer or regulatory bodies. Design of foundations shall permit equipment access as required, and access for maintenance of foundations and adjacent hull structure. Foundations shall incorporate suitable supports and brackets to prevent excessive or unusual vibration under the normal range of vessel operating conditions. Welding of foundations shall be double continuous.

200 MAIN PROPULSION

200.1 References

Reference ID	Number	Title
(2A)	16109-003-170-1	Propulsion Equipment Arrangement
(2B)	16109-003-201-1	Machinery Arrangement
(2C)	16109-003-259-1	Exhaust System
(2D)	16109-003-261-0	Fuel, Water and Sewage Tank Configuration
(2E)	16109-003-261-1	Fuel Oil Diagram
(2F)	16109-003-520-0	Sea Chests and Seawater Piping
(2G)	16109-003-601-2	Food Services Arrangement

200.2 Introduction

The propulsion machinery installation shall consist of four (4) waterjet propulsion trains, each consisting of a waterjet driven by a diesel engine and reversing reduction gear. Each demi hull contains two (2) complete propulsion trains. Each main engine shall be nominally rated at 800 hp at 2100 rpm. See Section 233 for main engine details.

Two (2) ship service diesel generator sets shall be provided as specified in Section 310.

NCDOT's approval shall be required in writing for each item of propulsion equipment prior to the Contractor's purchase. If an item of equipment is identified by manufacturer and part number within the Specification or Contract Guidance Drawings, it shall be considered approved for purchase provided the Contractor has verified that:

- A. Part numbers are current with manufacturer numbers. Note that part numbers provided by the Specification and Drawings are not intended to describe every feature required. For example, a pump part number may not describe the requirements of the motor, or may not include such required features as mechanical seals.
- B. The item meets the performance and material requirements of the system as installed by the Contractor and as required by the Specification and the Contract Guidance Drawings.
- C. The item complies with USCG requirements for material, construction, and performance.
- D. The item, if subject to Buy America, complies with Buy America requirements or has been granted a waiver. See NCDOT Construction Specification A.8(l).

A foundation shall be provided for each piece of machinery. See Section 180 for additional guidance on foundations.

Each piece of equipment shall be installed, aligned, and fastened within the tolerances prescribed by the manufacturer. Equipment shall be removable without cutting foundations or attachments.

200.3 Machinery Arrangement

The Engine Room machinery shall be arranged as generally shown on Reference (2B) and is intended for unattended operation.

Machinery shall be installed to allow access for maintenance and disassembly. The final location of all machinery shall be subject to the approval of NCDOT.

Obstructions or interferences shall be avoided where possible. The Contractor shall pay particular attention to sharp edges, corners, or protruding appendages or equipment or structure where operating personnel are likely to pass or work. Such obstructions, if unavoidable, shall be provided with guards or other means to protect personnel from injury.

To facilitate future machinery removal and re-installation, route all wiring, and piping in the Engine Rooms' overheads clear of the machinery removal hatches. Pad eyes or lifting points shall be designed and installed in the overhead of the machinery space to facilitate future removal of major machinery items.

Removable personnel safety guards shall be installed over shafting and other exposed rotating components. The safety guards shall be expanded metal aluminum with stainless steel fasteners.

200.4 Tests and Trials

Complete tests of all machinery and equipment installations, including dock and sea trials, shall be as described in Section 982.

233P Propulsion Engines

233.1 General

Furnish and install four (4) diesel propulsion engines with an intermittent rating of 803 bhp at 2,100 rpm. The engines shall be four-cycle turbocharged / after cooled engines meeting the EPA Tier 3 emissions standards. The engines shall be provided with all necessary documentation to demonstrate compliance with EPA emissions requirements. Each engine shall be furnished with all necessary features, equipment, and accessories, including but not limited to:

- Society of Automotive Engineers (SAE) standard rotation (counterclockwise when viewed from the flywheel end)
- Separate circuit after-cooling (SCAC)
- Heat exchanger cooled configuration with engine mounted heat exchangers
- Engine mounted full flow transmission oil cooler, suitable for seawater
- Jacket water cooled turbocharger
- Engine mounted and driven jacket water and SCAC pumps
- Engine mounted seawater pump
- Engine mounted fuel pump and simplex fuel filter
- Engine mounted simplex lube oil filter

- Personnel safety guards over rotating components
- Electronic control module with engine mounted sensors
- Local instrument panel in engine room
- Overspeed shutdown
- SAE No. 0 flywheel housing
- Deep marine oil sump
- 24V Electric starting motor
- Engine manufacturer approved premixed anti-freeze
- SW Low Pressure Alarm

In addition, two propulsion engine manufacturer supplied, engine monitoring displays shall be provided and installed in the Pilothouse. One display shall be configured to monitor the two port engines and the second shall be configured to monitor the two starboard engines. These displays shall have a 6.5" LCD color screen with 115° viewing angle.

At minimum, these displays shall monitor and show the following engine parameter for each propulsion engine installed:

- Engine speed
- Engine load
- Boost pressure
- Coolant temperature
- Oil pressure
- Fuel temperature
- Fuel pressure
- Fuel rate
- Battery voltage
- Engine manifold temperature
- Engine hours

233.2 Installation

Installation shall be performed to the satisfaction of the NCDOT Representative and the equipment manufacturers' representatives. Engage the services of the manufacturers' representatives to attend equipment installation, start-up, and sea trials.

The main engines shall be installed as shown on Reference (1A), subject to alignment of the shafting. Each engine and its reduction gear shall be resiliently mounted as a unit.

Resilient mounts shall be combination steel spring and rubber spring isolators, with internal snubbers. Each isolator shall be furnished with a steel soleplate and threaded height adjuster. Align each main engine on its mounts using a marine grade, 100% solids, two component, non-shrinking, chocking compound between the soleplate and engine girder. The Contractor shall require six degrees of freedom solid body calculations be performed by the mount manufacturer to verify mount selection and engine range of motion. Refer to Section 243.3 for additional alignment requirements.

The Contractor shall provide or design and fabricate forward engine mounting brackets and reduction gear mounting brackets to suit the resilient mounts and engine installation.

All piping connections to the main engines are to be made with USCG approved flexible hose or bellows. Flexible connections shall have sufficient flexibility to accommodate the full range of engine motion on its resilient mounts. Controls and alarms shall be provided as described in Sections 420.7 and 430.

241Re duction Gears

Provide and install four (4) vertical offset, reversing reduction gears with a 1.2:1 reduction ratio. The reduction ratio shall be confirmed with the jet manufacturer after completion of the Contractor's weight estimate. Each gear shall be close coupled to its main engine with a flywheel mounted torsional coupling. Each gear shall be minimally rated for 803 hp at 2,100 rpm.

The reduction gears shall be supplied with the manufacturer's standard equipment, except as superseded by the additional equipment listed herein. The following equipment shall be furnished with each reduction gear:

<u>Qty</u>	<u>Item</u>
1	SAE No. 0 housing
1	Torsional coupling
1	Electronic clutch control module with manual override
2	Pressure switches for indication of primary and secondary clutch engagement
3	Alarm contact makers (open for alarm) for the following points: <ul style="list-style-type: none"> • Reduction gear high LO temperature • Reduction gear low LO pressure
1	SAE "A" live PTO (for waterjet oil pump)

Torsional coupling selection is subject to the results of the Contractor's torsional analysis. The Contractor shall require the torsional coupling supplier to perform a torsional analysis of the complete drive train including entrained water. The coupling model and the stiffness of the torsional coupling shall be selected based upon the results of the torsional analysis. The torsional analysis report shall be submitted to NCDOT for approval.

243P ropulsion Shafting

Four (4) complete propulsion shaft systems shall be provided as described herein and as shown on Reference (2A). The complete shafting system, including cardan shafts, bearings, and bulkhead seals, shall be designed and furnished as an integrated package by a single supplier.

The shafting supplier shall have at least ten years of experience in the design, manufacture, balancing of cardan shaft offset drivelines, including carbon fiber/composite shafting, and a documented successful history providing shafting for similar USCG inspected or ABS classed marine waterjet propulsion installations.

Each outboard propulsion train shall have a single carbon fiber/steel composite cardan shaft assembly connecting the reduction gear output flange to the waterjet input flange.

Each inboard propulsion shaft assembly shall have a two-section cardan shaft assembly consisting of a carbon fiber/steel composite cardan shaft mated to a second steel cardan shaft. The shaft assembly shall be connected to the reduction gear output flange at its forward end, the waterjet input flange at its aft end, and shall be supported by a bulkhead mounted bearing mid-span at the aft engine room bulkhead.

Shafting dimensions shown on Reference (2A) are preliminary and may change subject to development of the detail design. The propulsion shafting system shall be in complete compliance with all applicable USCG requirements as well as all jet manufacturer requirements.

The shafts shall be capable of being withdrawn without having to remove the waterjet, engine, or gear or cutting structural bulkheads or foundations.

All shafting segments shall be dynamically balanced at maximum operating RPM to ISO 1940/1 G16.

The shafting shall be free from excessive torsional, longitudinal, and flexural vibrations throughout the operating range, and shall be designed to accommodate parallel and angular misalignment and axial movement. Prior to fabrication, the shafting manufacturer shall perform whirling calculations. Drawings and calculations shall be submitted to the waterjet manufacturer and Owner's Representative for approval prior to fabrication.

243.1 Shaft Bearings

Provide and install two (2) fully split pillow block roller bearing assemblies, one (1) on each inboard shaft line, as shown on Reference (2A). Mount and align bearing assemblies in accordance with the manufacturer's instructions. Fit tapered dowels between the bearing housing and bearing foundation after alignment.

243.2 Bulkhead Seals

Provide and install four (4) aluminum bulkhead seals, one (1) on each shaft line, as shown on Reference (2A). The seals shall be fully split, non-contact seals which will allow for the engine movement during starting and operation. The seals shall be capable of automatically sealing the bulkhead in the event of flooding on either side of the bulkhead, and shall accommodate the full range of shaft movement during operation. The seals shall not require lubrication or cooling, or utilize packing.

Mount and align seals in accordance with the manufacturer's instructions. Fit tapered dowels between the seal housing and foundation after alignment.

243.3 Installation and Alignment

Each propulsion shaft line shall be installed and aligned within the tolerances prescribed by the manufacturers. Installation and alignment shall be performed to the satisfaction of the Owner's Representative and the equipment manufacturer's representatives. The Contractor shall engage the services of manufacturers' representatives to attend this process.

Cardan shafts shall be installed with equal offset angles at each end, within manufacturer's recommended tolerances. Installed cardan shaft angles shall be less than four (4) degrees.

An alignment procedure shall be submitted to NCDOT for approval at least one (1) week prior to the start of shafting system installation. A description of the intended set up procedures, alignment angles, and offsets shall be included in the Contractor's alignment procedure.

Alignment results will be reviewed by the Owner's Representative and approved by the manufacturers' representatives prior to pouring chocking compound or installing alignment dowels.

245Water jet Propulsion Units

Provide and install four (4) waterjet propulsion units with integrated intake and transition duct, as shown on Reference (2A). Each waterjet shall be rated for a minimum of 800 hp input at 1750 rpm. Each waterjet shall be supplied complete with all necessary features, including:

- Left hand rotation (counter-clockwise when facing engine flywheel)
- Fabricated marine grade aluminum intake body with removable inlet grate.
- Cast marine grade aluminum impeller casing with stainless liner
- Cast aluminum discharge nozzle
- Stainless steel main shaft, impeller, impeller race liner
- High thrust, split duct reverse deflector with hydraulic actuation
- Balanced, cast aluminum steering nozzle with hydraulic actuation
- Complete hydraulic system including:
 - Hydraulic pump, PTO driven
 - Hydraulic reservoir, remote mounted
 - Hydraulic oil cooler, suitable for seawater cooling
 - Steering and reverse cylinders, jet mounted
 - Control valve bank, jet mounted
 - Hose kit
- Complete control and monitoring system (Refer to Section 420.7)
- Locally controlled back flush capabilities

Final impeller selection shall be made after completion of the Contractor's weight estimate.

Installation shall be performed to the satisfaction of the NCDOT Representative and the equipment manufacturers' representatives. Engage the services of the manufacturers' representatives to attend equipment installation, commissioning, and sea trials.

Mount a PTO driven waterjet hydraulic pump on each reduction gear. Install hydraulic tubing between the hydraulic pump, hydraulic reservoir, and waterjet in accordance with manufacturer's requirements. Contractor supplied hydraulic tubing shall be ASTM A269 316L stainless steel with stainless steel fittings. Hydraulic tube fittings and takedown joints shall be SAE J1453 O-ring face seal. Tube bends shall be used in lieu of tube fittings where practicable. Provide USCG compliant hydraulic hoses only where required for flexibility in lengths not exceeding 30 inches.

256S eawater Cooling

Seawater cooling shall be provided for each propulsion engine, each reduction gear and each ships service generator as shown on Reference (2F). Each engine shall be equipped with engine-driven, close-coupled seawater pumps to supply seawater to engine mounted heat exchangers. Heat exchangers shall be sized for the maximum flow of the seawater pump, and shall be supplied by the engine vendor.

Seawater piping shall be aluminum. Galvanic isolation kits shall be installed at all flanged material transitions in piping, fittings, and equipment. Flexible connections shall be provided at all engine connections.

Each propulsion engine cooling line shall have an independent, simplex, seawater strainer of aluminum body construction with stainless steel screen sized for a maximum pressure drop of 1 psi with a maximum flow of 200 gpm with a clean screen.

Each propulsion engine cooling line shall provide cooling water to the hydraulic oil cooler for each associated jet.

Propulsion engine cooling water will discharge into the propulsion engine exhaust spray ring. The Contractor shall provide and install a bypass to an overboard discharge to minimize exhaust back pressure if the final propulsion exhaust design requires it.

Generator engine cooling water will discharge into the generator engine wet exhaust system.

259En gine Exhaust System

Each diesel engine shall have its own separate exhaust line installed. Exhaust shall be wet exhaust type as shown on Reference (2C). Seawater will be supplied to the exhaust system as shown on Reference (2F).

The Contractor shall engage the propulsion exhaust system supplier to verify that the engine exhaust installation will not exceed the engine manufacturer's specified maximum back pressure. All propulsion engine exhaust equipment is to be provided by a single supplier.

Exhaust piping from the propulsion engine outlets shall be stainless steel risers generally designed per Reference (2F), with permanent insulation and mounted using stainless steel support rods with threaded adjustment. Each exhaust riser shall be fitted with a port to enable back pressure to be recorded during sea trials. Flanged water injection rings shall be installed at the end of each riser. Each propulsion exhaust system shall be fitted with a suitable wet type muffler. Connections between the water injection ring and the muffler and the overboard

connection shall be silicone hose with fiberglass connection tubes. The overboard discharge connection shall extend a minimum of 6 inches inboard.

Provide and install generator exhaust piping generally as shown on Reference (2F) and in accordance with generator manufacturer's guidance. Waterlift mufflers and wet exhaust elbows shall be provided with the generator.

261F Fuel Oil System

The fuel oil system consists of service piping for the main propulsion engines and generator diesel engines as shown on Reference (1E). The vessel will have two (2) independent fuel oil tanks, sized for 1,100 gallons (at 95%) each; one (1) shall be located in each demi hull as shown on Reference (2D). The fuel tanks shall be fabricated from 5083 H321 or H116 aluminum plate. Provide all necessary tanks, pumps, filters, thermometers, gauges, controls, strainers, piping, valves, fittings, indicators, etc. required for efficient operation. Fuel will be No. 2 low sulfur diesel oil.

261.1 Fuel Oil Service System

The system shall be arranged such that the engines draw fuel from the tank located within the same hull via a common supply line. Fuel return lines from each piece of equipment shall combine and return to the tank located within the same hull.

Each engine shall have an independent primary filter installed between the supply tank and the engine's fuel pump. Provide manifold triplex coalescing turbine-type filters with a maximum clean filter pressure drop of 2.5 psi at a maximum flow rate of 540 gph for each main engine. Provide simplex coalescing turbine-type filters with a maximum clean filter pressure drop of 0.49 psi at a maximum flow rate of 180 gph for each ships service generator. Main engine and generator engines fuel filters shall use the same filter element. All filter units shall be equipped with metal water bowls.

Provide and install approved flexible hose assemblies at each piece of equipment. The hose assemblies shall have 37 degrees SAE flare swivel fittings on both ends. Hoses shall be flame resistant and shall meet the requirements of 46 CFR 182.720(e). Standardize hose assemblies (fittings and lengths) for all equipment insofar as practical. Hose assemblies shall not be less than 9 inches and no more than 30 inches in length.

Fuel oil piping shall be constructed of 316 stainless steel seamless tubing with a wall thickness of 0.065 inches.

Provide and install an emergency shut off valve system to satisfy the requirements for fuel oil tank shutoff valves found in 46 CFR 182.455. The tank shutoff valves shall be equipped with remote cable type valve actuators. The valves shall be operable locally as well as remotely. The remote valve control station shall be located in Food Services as shown on Reference (2G).

Each fuel oil tank suction shall have a suction bell mouth with an inlet diameter not less than 1-1/2 times the pipe diameter. The bottom of the inlet shall be 3 inches from the bottom of the tank.

261.2 Fuel Oil Fills and Vents

Each fuel oil tank shall be served by independent 2 inch fill line penetrating the top of the tank. The fill terminal shall be located on the Foredeck as shown on Reference (2E) and shall be fitted with ball valves and camlock type quick connect with lockable cap. The fill lines shall be constructed of aluminum piping.

Fuel oil vents shall be aluminum piping with aluminum ball check valves with stainless steel flash screens, and shall be collocated with the fill terminals.

A containment fabricated of aluminum plate shall be provided around the fill and vent piping on the Foredeck. The containment shall be a minimum of 21 gallon capacity, and shall have round bar around the edge. The containment shall be provided with a pipe coupling and cap at the lowest corner of the containment to allow drainage of rainwater.

See Section 437 for tank level indication.

300 ELECTRICAL**300.1 References**

Reference ID	Number	Title
(3A)	16109-003-300-0	Electrical Loads Analysis
(3B)	16109-003-320-0	One Line Diagrams
(3C)	16109-003-401-0	Pilothouse Arrangement
(3D)	16109-003-201-1	Machinery Arrangement
(3E)	16109-003-101-1	Profiles and Arrangements
(3F)	16109-003-635-1	Ceiling and Lighting Plan

300.2 General

Provide a complete electrical system including wiring and equipment, as described in this Specification and References (3A) thru (3D).

All equipment, materials and workmanship shall fully comply with the requirements of 46 CFR Subchapter T, and the standards of all other agencies invoked or referenced by it. The installation of electrical equipment and wiring required for items called out in other sections of this Specification shall be provided and installed whether or not specifically called for in the electrical sections of the Specification.

301Elec trical Equipment Arrangement

The main components of the system shall consist of two (2) ship service generators rated at 40 kW, one (1) ship's service switchboard and two (2) primary distribution panels.

The ship's service switchboard shall be rated for 208VAC, 60 Hz, 3-phase.

310DI ESEL POWER GENERATORS

The Contractor shall furnish and install two (2) marine generator sets. Engines shall be seawater cooled with engine mounted heat exchangers and engine driven seawater pumps. Each generator set shall have a prime power rating of 40 kW at 1800 rpm, and shall be rated for 208 volts, 3-phase, 4 wire, 0.80 power factor, 60 hertz. Provide all accessories, parts, connectors, fasteners, hoses, pipes, and tubes to complete a functional installation. Principal generator set characteristics shall be as follows:

- Mounted dry air cleaner with replaceable filter elements
- 12 Volt DC electric start
- 12 Volt DC alternator
- Engine mounted heat exchanger cooled
- USCG-approved fire rated fuel hoses

- Engine mounted fuel pump and fuel filter with manual priming pump
- Engine mounted lube oil filter
- Personnel safety guards over all rotating components
- Emergency shutdowns
- Direct coupled single bearing AC brushless generator
- Automatic voltage regulator
- Welded steel base with oil containment pan
- Vibration isolation mounts
- Wet exhaust elbow and waterlift muffler

In addition to local control and monitoring, the Contractor shall provide generator set gauge and meter panels in the Pilothouse, which include a means for starting, stopping, and transfer of load for both generator sets.

320DI DISTRIBUTION SYSTEM

The Contractor shall detail design, provide, and install a ship's service power distribution system as indicated on Reference (3B). All workmanship, engineering and materials shall meet the applicable USCG and IEEE 45 requirements and the standards of all other agencies invoked or referenced by them.

As part of the detailed design effort, the Contractor shall develop a loads analysis and an electrical one line diagram. These documents shall be updated as the project progresses, incorporating final equipment selection, updating cable sizing and circuit breaker ratings as appropriate. The Contractor shall perform cable voltage drop calculations to ensure that all AC circuits are within 6% of nominal line voltage, and all DC circuits are within 10% of nominal line voltage.

The Contract Guidance Drawings are intended to cover only the principal features of the generating and distribution system. The Contractor shall complete the design including all necessary controls, protective features, and wiring required for proper operation of the electrical apparatus and equipment of the entire vessel in accordance with applicable regulations and to provide for vessel operation in all modes on its intended route.

The Contractor shall provide and install electrically powered equipment, systems, appliances, and apparatus to the 208/120 volt, 3-phase distribution system indicated on Reference (3B). Configure the power generating and distribution system to be energized by either ship service generator or a shore power connection, through a ship service switchboard, connected to the distribution system supplying electrical appliances and apparatus with power.

Auxiliary machinery control voltages shall be 120 volts or less, provided by internal control transformers, when the control circuit extends outside the motor control enclosure. This includes such circuits as thermostats, motor control, remote shutdowns, and indicator and operator controls.

Electrical equipment not specifically required to be portable shall be permanently connected to the ship's wiring. The Contractor shall be responsible for balancing single-phase loads.

The system shall be grounded at only one (1) point in the main switchboard, and that point shall be accessible for inspection.

Ground non-current carrying metallic parts of electrical machinery and equipment to structure, either by mounting bolts and foundations, or by separate grounding straps or conductors sized for the circuit breaker trip rating. Ground the metal frames of portable lamps, tools and other similar apparatus supplied as ship's equipment, through a suitable conductor in the supply cable.

Each electrical distribution panel shall be sized for the voltage, current and phasing to meet the load requirements. All terminals shall be UL listed as suitable for copper conduction material.

321S Ship Service Switchboard

The Contractor shall design, provide and install a USCG-approved ship service switchboard configured to control the two (2) ship service generators, connect to shore power, and distribute 208 volt 3-phase, 4 wire, 60 Hz power, and 120 volt 1-phase, 2 wire, 60 Hz power.

Generator and shore power shall be interlocked to prevent connection of more than one source to the switchboard bus. Remote operation from Pilothouse for start, stop, and dead-bus transfer of both generators shall be possible.

The switchboard shall be dead front and drip proof, and located as shown on Reference (3D). It shall be manufactured by a company with a current UL 891 (Dead Front Switchboards) certification that has been maintained for a minimum of one year prior to the start of manufacture.

The detailed design of the switchboard shall be submitted to NCDOT for approval prior construction. Submittal shall include enclosure details; bus bar configuration size and bracing; and power and control wiring diagrams.

322Distr ibution Panels

The Contractor shall provide and install distribution panels as indicated on Reference (3B). Electrical distribution panels shall meet UL Standard 67, including the Marine Supplement thereto. Distribution panel enclosures shall be drip-proof, NEMA 12 as a minimum, and NEMA 4X if exposed to the weather.

In spaces accessible to passengers, panel fronts shall have a locking device and shall be keyed to match the key plan of existing vessels. Panels located in spaces not accessible to the passengers, shall not have keyed locks. Doors shall have an integral circuit directory which identifies each circuit.

323En closures

Panel assemblies shall be enclosed in steel cabinets. Panelboards shall be installed on foundations. Where practicable, enclosures shall be flush mounted with cable entrances and cable supports from the bottom of the panels and between the joiner panels or behind bulkheads such that cables are not exposed to the exterior.

Panel doors shall open a minimum of 120 degrees. It shall be possible to remove the panel front for the purpose of breaker repair or replacement without having to remove the panel from its mountings or move any surrounding structure.

324B Bus Work

Panel bus work shall be tin or silver plated copper bar. Phasing shall be such that a three-pole breaker at any location in the panel will be attached to all three phases.

Except for the switchboard, all busing to circuit breakers shall be the same size; i.e., any circuit breaker may be located anywhere in the panel regardless of trip setting and not exceed the bus current rating to that circuit breaker position.

All panels shall have main lugs only. Lugs shall not be made of aluminum.

325Circuit Breakers

Generator circuit breakers in the ship service switchboard shall be molded case type and motorized for remote operation. All other circuit breakers in the switchboard and distribution panels shall be molded case type, quick-make, quick-break, thermal magnetic trip indication, and with a common trip on all multi-pole circuit breakers. All circuit breakers shall comply with UL Standard 489.

Circuit breakers shall have a UL listed current interrupting rating suitable for the short circuit current capacity of the power source.

Distribution panels and circuit breakers located in the machinery spaces shall be rated for 50 degrees Celsius. Distribution panels and circuit breakers located elsewhere shall be rated for 40 degrees Celsius.

All circuit breakers shall have trip-free handles.

326Load Balancing

Distribute the single-phase loads between phases such that the difference between the most heavily and lightly loaded phases is within 15% of the average current under the cruise condition.

327Cabling and Cableway Installations

Provide and install all cable necessary to complete the electric plant. Electrical wire and cables shall be low smoke, zero halogen, constructed in accordance with IEEE-1580. US Navy, MIL-C-24643, cable may be substituted if the cables meet the requirements of 46 CFR Part 183. Unarmored cable shall be used.

Electronic equipment cable shall be as recommended by the equipment manufacturer. Cables connecting floodlights, searchlights, navigation lights, deck lights, etc., to outlets, extension cords and cords on portable equipment shall be type SO neoprene jacketed with a minimum of three (3) conductors. Minimum AWG cable size shall be #14 for power and #18 for controls and alarms. Cables supplying loads from VFDs shall be VFD type cable.

Cables shall be installed so as to minimize damage by weather, mechanical, and corrosion agents. Stuffing tubes or multi-cable transits shall be installed when entering any watertight equipment, when passing through watertight decks and bulkheads, and when entering the top of power panels and the main switchboard. Cables to exterior equipment shall be run on the interior as far as possible. Cables run on the exterior in locations where impact damage may be expected shall be run in pipe conduit for protection.

Cable clamps shall be used for the ends of cables terminating in equipment not requiring stuffing tubes. Silicon sealant shall be applied on stuffing tubes in the weather and wet spaces, to supplement the seal provided by the stuffing tube fitting.

Cables shall be run in wireways or cable pans wherever possible. When passing through non-tight bulkheads or structure, cables shall be protected with an aluminum collar. Provide at least 20% of spare space in wireways for future cables and 40% in wireways leading to the Pilothouse. Maximum spacing of cable hangers shall be 14 inch in horizontal runs and 18 inch in vertical runs. IEEE Std 45 requirements (2002) for cable hanger spacing shall be allowed when used with IEEE 1580 cables.

Cables rising through decks shall be protected by kick pipes with a 9 inch minimum height. Cables run below gratings and ladders shall be protected from falling objects, dirt, and liquids by means of sheet metal shields. Cables shall not pass through bilges or in places where liquids can collect. Conduit shall be used only for mechanical protection and when installed, shall not collect water or other liquids. Avoid running cables adjacent to or over heat producing equipment; connections to heat producing equipment shall be from below.

Insofar as possible, cables in sheathed and lined spaces shall be concealed.

Cables shall be identified, by circuit designation, with embossed aluminum tape where they enter any equipment, where they originate and on either side of a bulkhead or deck through which they pass.

Individual conductors in internal communications and electronic cables that pass through bulkheads or decks shall be identified at each termination by slip-on imprinted plastic sleeves.

Power and control cables shall be run in separate wireways.

328S switches, Receptacles, Plugs & Connection Boxes

Provide and install all necessary switches, receptacles, plugs and connection boxes as indicated in the Contract Documents. Switches, receptacles and small connection boxes in sheathed and lined spaces shall be flush mounted. Use surface mounting in other spaces. Units in the weather and in normally wet or damp spaces shall be watertight. "Knock-out" type enclosures for switches, receptacles and connection boxes shall not be used in non-air-conditioned spaces.

Switches shall open all ungrounded poles. Switches for compartment lighting shall be located approximately 54 inches above the deck and adjacent to the doorway of the space. Passenger cabin lighting shall be switched from Food Services.

Receptacles located in the heads, Food Services, weather or damp spaces and the Engine Rooms shall be GFCI type or installed in GFCI protected circuits.

A mating plug shall be provided for each specific purpose receptacle, such as shore power and navigation lights.

Provide and install a watertight 60 amp, 208 volt, 3-phase, 3 pole, 4-wire, shore power connection receptacle located aft of the deck house. Make up and provide a shore power cable 40 feet in length to match the Owner's preferred shore power connection.

Provide convenience receptacles in the Passenger Space, Heads, Food Services, Pilothouse, Engine Room, Jet Room, Fore, Aft and Upper Decks as directed by NCDOT. There shall be a minimum of eighteen (18) total duplex receptacles in the Passenger Space including one (1) receptacle on the bulkhead end of each row and two (2) on the forward bulkhead.

Passenger Space receptacles shall be combination 120VAC with USB power ports.

329M otors and Controllers

Provide and install motors as indicated in the Contract Documents. Motors less than one horsepower shall be 120VAC, single phase. Motors one horsepower and larger shall be 208VAC, 3-phase. Pump motors one horsepower and larger shall be TEFC. Vane axial fan motors shall be TEAO. Motors shall be ordered with their driven auxiliaries, mounted on a common skid, and matched to the equipment. All motors, so far as possible, shall be ordered from the same motor manufacturer to minimize spare parts required.

Motors shall be provided with controllers suitable for shipboard environment with drip-proof enclosures, NEMA 12. Controllers located in the weather and in normally wet or damp spaces shall be watertight, NEMA 4X.

Controllers for motors less than one horsepower not requiring automatic control may be manual start/stop. Controllers shall open each phase conductor and provide overload protection in the phase conductor of single-phase motors and at least two of the three phases of three phase motors. Controllers shall be "across the line" starting.

Controllers shall be labeled and located near the motors they control, except where the motors are located in inconvenient locations. Controllers for fans may be exempted from this requirement. Controllers operating automatic devices shall have automatic-manual selector switches. Controllers with push-button start/stop shall be equipped with lockouts.

330LIG HTING

Provide and install illumination throughout the interior and exterior of the vessel, including the accommodations, Pilothouse and machinery spaces per Reference (3F).

330.1 Interior Lighting

The interior of the vessel shall be adequately lighted throughout with marine-type LED fixtures of a style applicable to the location and suitable for the service required per Reference (3F). In

addition to area lighting, lights shall be provided at each workspace. All fixtures shall operate on 120VAC, 60 Hz.

Passenger Space and Pilothouse lighting fixtures shall be recessed down lights compatible with the ceiling system. Passenger space lighting shall be divided between two (2) circuits each dimmable from Food Services. The Pilothouse shall have separately switched white and red lighting. Fixtures shall provide at least 600 lumens at 3000K with dimming functionality.

Engine Room and void space lighting fixtures shall be surface-mounted, drip proof, linear lights. The fixtures shall provide at least 1,900 lumens at 5000K and comply with UL Standard 1598.

330.2 Exterior Lighting

A complete exterior lighting system shall be installed in accordance with IEEE-45 standards and applicable regulatory standards. In general, the quantity, type and arrangement of lighting fixtures shall be provided per Reference (3F). Switches shall be watertight depending on location. Fixtures shall comply with UL Standard 1598A. All fixtures shall operate on 120VAC, 60 Hz.

Floodlights shall be the LED equivalent of a 400W HID fixture with a medium flood distribution at 5000K. Exterior lights shall provide at least 600 lumens at 5000K with wall, rail, and overhead mounting capabilities and an amber lens option.

Floodlights are to be switched as pairs from inside the Pilothouse. Forward and aft main deck exterior lights shall be independently switched from the Pilothouse. Upper deck exterior lights shall be switched from inside the Pilothouse.

330.3 Emergency Lighting

Emergency lights shall be installed as shown in Reference (3F). The emergency lights for a given space shall draw primary power from the same circuit that provides power to the general lighting in that space. The single pole switches that control the general lighting fixtures shall be connected to the circuits such that the emergency lights remain energized from 120VAC when the switches are turned off. This configuration will allow the vessel's general lighting to be turned off without depleting the emergency lighting battery backup ballasts. Pilothouse emergency lights shall be able to be switched. All emergency battery ballasts shall have adequate capacity to provide lighting for a period of at least 90 minutes upon loss of main power.

330.4 Navigation Lights

Provide and install navigation lights per USCG requirements. Navigation lights shall be commercial marine grade LED. The lights shall be controlled by a navigation light control panel in the Pilothouse. Configure the lights generally as shown on Reference (3C) and (3E).

1 each	Masthead Light
1 each	Stern Light
1 each	Starboard Side Light

1 each	Port Side Light
1 each	Anchor Light

330.5 Search Lights

Provide and install a searchlight with remote electric control, 350W Xenon lamp. The searchlight shall be located on the Pilothouse top elevated to clear the Pilothouse visor and provide clear illumination. A single controller for the searchlight shall be provided in the Pilothouse console.

340S TORAGE BATTERIES AND RECTIFIERS

Provide batteries for the various backup and power systems described herein and on Reference (3B). All batteries are to be Absorbed Glass Mat (AGM) construction, sealed valve regulated lead acid, 12-volt, sized and wired in series/parallel as required. Engine starting batteries shall be commercial marine grade. Contractor shall supply two (2) batteries connected in series for each propulsion engine and one (1) battery for each generator set. Batteries shall be installed and secured in vented, non-metallic acid proof boxes, provided with mounting racks.

340.1 Battery Chargers

Battery chargers shall be fitted with drip shields. Supply a battery charger for each bank of batteries. The chargers shall be electronic, fully automatic and when the battery reaches a full charge, the charger shall reduce its charging rate to a trickle current for battery maintenance. The charger shall also include a rate of charge indicator.

340.2 24 VDC Circuits

Provide and install three (3) 24 VDC battery banks and chargers per Reference (3B). The Pilothouse battery bank shall be located on the exterior Upper Deck per Reference (3C). The Jet Room battery banks shall be located as high as possible above the bilge in each Jet Room.

340.3 12 VDC Circuits

Provide and install one (1) 12 VDC battery and charger for Pilothouse distribution per Reference (3B). The battery shall be located on the exterior Upper Deck per Reference (3C).

400 COMMAND AND SURVEILLANCE / ELECTRONICS

400.1 References

Reference ID	Number	Title
(4A)	16109-003-401-0	Pilothouse Arrangement
(4B)	16109-003-101-1	Profiles and Arrangements

420NAVIGATION SYSTEMS

420.1 Pilothouse Console

The Pilothouse Console shall be arranged as shown on Reference (4A). Console shall be constructed of aluminum and have a matte black finish. See Section 662 for outfit details.

Once the Pilothouse structure is mostly complete develop a full-scale foam core mockup of the control console for NCDOT approval prior to final console fabrication. The helm chairs shall be positioned in the Pilothouse for the console mockup. To the greatest extent possible utilize control heads and panels from actual equipment to verify equipment location in the mockup. Of particular importance are the propulsion control locations.

Control and instrument leads shall be trunked from the console from below using a minimum of two (2) MCTs. As much as feasible one (1) MCT shall be for power cables and one (1) for control and signal cables, at least 50% of the available capacity shall remain unused in each MCT. Ten (10) unused 120 VAC duplex receptacles shall be included in the Pilothouse as shown on Reference (4A).

Navigation lights and panel shall be provided as specified in Section 330.

420.2 Whistle

One (1) electric horn with greater than 130 dBA loudness at 1 meter shall be provided and installed on the mast. The horn shall have programmed fog signal settings via a controller.

420.3 Clocks

One (1) 6 inch, 12/24 hour, battery operated quartz marine clock shall be provided and installed in the Pilothouse.

420.4 Barometer

One (1) 6-inch marine barometer shall be provided and installed in the Pilothouse.

420.5 Inclinator

One (1) "bubble in tube" type inclinometer shall be provided and installed. Inclinometer shall be graduated in degrees and mounted on centerline above the center Pilothouse window.

420.6 Fog Bell

One (1) 12 inch diameter cast bronze fog bell shall be provided with the vessel's name engraved on the surface. The bell shall be mounted, with brackets on the side of the Pilothouse. The bell shall have a polished finish with a preservative coating. The clapper shall be provided with a lanyard.

420.7 Propulsion Controls

A complete propulsion control and alarm systems shall be provided with the waterjet propulsion system and installed by the Contractor. The waterjet control and monitoring system shall provide the following functions:

- Waterjet steering control, all waterjets
- Waterjet reverse control, all waterjets
- Waterjet monitoring (steering nozzle and reverse bucket position indication)
- Waterjet hydraulic and control system alarms
- Backup control of waterjets, steering and reverse
- Primary engine throttle, all waterjets
- Primary gear select, all waterjets

The Contractor shall engage the services of the manufacturer's representative to verify correct installation, calibration, and commissioning of the propulsion controls.

The system shall have three (3) control stations, one (1) main station in the Pilothouse and two (2) bridge wing stations as show in Reference (4A). Local control panels shall also be installed. Control transfer between shall be accomplished via the station panel.

The Pilothouse control station shall have the following components:

<u>Qty</u>	<u>Item</u>
1	Station panel, mounted in the Pilothouse console
2	Backup panels, mounted in the Pilothouse console
1	Single axis steering joystick, mounted in the captain's chair, left armrest
1	Single axis steering joystick, mounted in the co-captain's chair, right armrest
2	Twin-lever engine throttle control, console mounted between the captain and co-captain's chairs
1	Three-axis maneuvering joystick, mounted in the Pilothouse console

Each Bridge Wing control station shall have the following components, mounted in the bridge wing console:

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<u>Qty</u>	<u>Item</u>
1	Station Panel
2	Gear Select Panels
1	Three-axis maneuvering joystick

In addition to the waterjet propulsion controls, provide and install two (2) engine control panels for monitoring and control of the propulsion engines, see Section 233.1. Independent emergency shutdown switches with a switch guard for each propulsion train shall be installed in the Pilothouse console.

At minimum the station panel shall monitor and display the following waterjet alarms for each waterjet installation:

- Hydraulic oil high temperature
- Hydraulic oil low pressure
- Hydraulic oil low level
- Control supply low voltage
- Control steering feedback device integrity
- Control steering reverse feedback device integrity
- Control valve coil integrity
- CanBus integrity
- Control helm device integrity
- Control levers integrity

420.8 Anemometer

One (1) anemometer wind speed and direction instrument shall be installed. The anemometer shall provide for house top mounting with an overhead display inside the Pilothouse. The anemometer shall be installed in a location such that the airflow is not significantly affected by house top features.

420.9 Thermometer

A Thermometer shall be provided and installed in the Pilothouse for outside air temperature.

423Elec Electronic Navigation Aids and Exterior Communications

423.1 General

The electronic systems shall be in accordance with the applicable regulations of the Federal Communications Commission, Part 83, and USCG regulations. The installation and testing of equipment shall be supervised by the equipment manufacturer's representative. All antennae shall be installed to avoid interference with each other and provide maximum clear reception.

The Contractor shall be responsible for accomplishing FCC inspection and obtaining certification. The systems shall be considered complete only when the FCC inspection and certification has been accomplished. All equipment shall be of commercial marine grade quality. Additionally, the Contractor shall obtain NCDOT's approval of the selected equipment prior to purchasing.

423.2 Radar and GPS System

The vessel shall be supplied with an integrated radar/GPS/chart plotter/AIS/Depth sounder system consisting of one multi-functional display (MFD), two (2) radar units each with 4 foot open array antennas , , a GPS antenna, and a Class A AIS transceiver with antenna. All of this system equipment shall be from the same manufacturer to insure proper integration.

The MFD shall have the following characteristics

- 15.6 inch wide touch screen
- Integrated GPS
- Integrated depth sounder
- Remote control
- Inputs for at least two radars antennas, but one operational at a time

The radars shall have the following characteristics

- High speed craft capable
- X band type
- Range detection up to 96 NM
- Minimum range detection of 20 m
- Output power of 12kW
- 1.9° horizontal beam width
- 22° vertical beam width

The AIS transceiver shall have the following characteristics

- 4.5 inch display
- Built in 12 channel GPS receiver
- Able to monitor Class A and Class B AIS
- Graphical display of AIS target data
- DSC channel 70 receiver

The Contractor shall supply and install all interconnecting cabling, interface units, junction boxes, antennas, and support brackets for a complete and functional system. The displays shall be located in the Pilothouse as directed by NCDOT.

423.3 Depth Sounder

The MFD unit shall have an integral depth sounder. One depth sounder transducer shall be provided and installed. The transducer shall be from the same manufacturer as the MFD system. The installation shall include all interfacing hardware and cabling.

423.4 VHF Radio System

The vessel shall use VHF radio as the principal means of external communication. The Contractor shall furnish and install two (2) complete systems consisting of a VHF radio, with a 4-foot antenna and two 5 inch round external talk back loudhailer speakers. One talk back speaker shall be mounted in the overhead 01 deck brow to provide communications to the foredeck and one in the overhead aft in way of the mooring arrangements to serve the aft deck. Supply and install all interconnecting cabling and support brackets for a complete functional system.

The VHF radios shall have the following characteristics

- 25W output power
- Talk back loudhailer capable
- Horn/fog horn feature built in
- Active noise canceling
- IPX8 waterproofing
- Weather and alert channels

423.5 Digital Compass

A digital compass system shall be provided and installed in the Pilothouse console. The installation shall consist of one (1) digital display. The remote sensing unit shall be installed on the house top, on a non-metallic pedestal, a minimum of 18 inches from any possible magnetic influence. The installation shall include all required interfacing hardware and cabling.

The digital compass shall have the following characteristics

- Standard NMEA output capable of integration with the MFD unit
- Heading displayed in large digital numerals along with familiar points of compass
- Selectable damping levels
- Black in color
- Remote sensing unit

430IN TERIOR COMMUNICATIONS AND ALARM SYSTEMS

430.1 General

The electrical installation shall be as described in Section 300.

430.2 Telephone, Public Address and General Alarm System

Shipboard communications and general alarm shall be provided by telephone and a combined public address and general alarm system. The system shall meet all applicable requirements for internal communications and emergency alarm systems as set forth in 46 CFR, Subchapter T.

The Contractor shall provide and install an IP dial telephone system. The system shall include three (3) phone stations located in the Pilothouse, Food Service Area, and Filling Station. The phone stations shall be connected via permanently installed network cables. The network cable installations shall terminate at each phone station with a bulkhead-mounted Ethernet jack.

The PA/GA system shall include the following features:

- Audio messaging with loudspeakers throughout the passenger spaces as required to adequately broadcast messages
- A control panel in the Pilothouse to select prerecorded messages
- A hand microphone to broadcast custom messages

In addition, an ADA visual messaging system shall be provided with the following capabilities:

- Minimum 50 inch LED HD 1080P, flat screen TV in the passenger space
- Capability of showing advertising for future needs
- Capability of future satellite connection

The general alarm function shall be integrated with the public address system. The audible alarm shall be transmitted over the vessel's loudspeakers.

The system shall be tested and verified by the manufacturer's Technical Representative.

Nameplates and markings shall be provided in accordance with USCG regulations.

430.3 Integrated Monitoring Alarm and Control System

The Integrated Monitoring Alarm and Control System (IMACS) shall be supplied by the Contractor. It shall collect and display information from switched or analog inputs, or from digital communications. Propulsion related alarm and monitoring shall be supplied by engine and jet manufacturer panels; see Sections 233.1 and 420.1, respectively.

Under no circumstances shall alarm and monitoring devices contain mercury.

Alarm system logic shall be such that the alarms are self-monitoring, fail safe type. All required software and hardware shall be provided to the Owner for future system modifications (additions/deletions of monitoring/alarm points and/or modifications to set points). See Software Programming in Section 856.

The alarm system shall have time delay and programming capabilities to prevent nuisance alarms from occurring when transient alarm conditions exist. Alarms shall not occur during normal startup or shutdown of equipment, or during normal maneuvering operations such as rapid throttle and direction changes from the operator. The Contractor shall demonstrate this capability during trials.

The system shall have a self-diagnostic feature that is activated upon power-up to identify any system errors or deficiencies. The normal display screen and alternate system display screens shall be developed in consultation with and approved by NCDOT. When an alarm condition is detected, the alarm(s) on the display shall be activated. The display screen will show a flashing message indicating which alarm is active. If the acknowledge button is pushed, the alarms shall be silenced. Once an alarm has been acknowledged the display will return to the Normal Display. Acknowledged alarms will remain active until the alarm condition clears. Acknowledged alarms can be viewed in sequence by selecting the Alarm Page screen. Acknowledging one alarm shall not prevent operation or display of succeeding alarms.

The following table represents, as a minimum, the machinery and system alarms that shall be integrated into the alarm system panel. The Contractor shall verify that the alarms installed meet the minimum requirements of the USCG 46 CFR for alarms.

Table 3: Alarms List

NO.	ALARM DESCRIPTION	TYPE
<i>Tank Levels</i>		
1	Fuel Oil Service Tank Port	LAL
2	Fuel Oil Service Tank Port	LAH
3	Fuel Oil Service Tank Stbd	LAL
4	Fuel Oil Service Tank Stbd	LAH
5	Potable Water Tank	LAL
6	Sewage Tank	LAH
<i>Bilge Levels</i>		
7	Void 1 Port Bilge Level	LAH
8	Void 1 Stbd Bilge Level	LAH
9	Void 2 Port Bilge Level	LAH
10	Void 2 Stbd Bilge Level	LAH
11	Tank Room Port Bilge Level	LAH
12	Tank Room Stbd Bilge Level	LAH
13	Engine Room Port Bilge Level	LAH
14	Engine Room Stbd Bilge Level	LAH
15	Jet Room Port Bilge Level	LAH
16	Jet Room Stbd Bilge Level	LAH
<i>Propulsion Controls</i>		
17	Propulsion Control Power Supply Failure	EAL
<i>Port SSDG</i>		
18	Port SSDG LO Level	LAL
19	Port SSDG LO Pressure	PAL
20	Port SSDG Coolant Level	LAL
21	Port SSDG Coolant Temperature	TAH
22	Port SSDG Water Flow	FAL
23	Port SSDG Overspeed	UA
<i>Stbd SSDG</i>		
24	Stbd SSDG LO Level	LAL
25	Stbd SSDG LO Pressure	PAL
26	Stbd SSDG Coolant Level	LAL
27	Stbd SSDG Coolant Temperature	TAH
28	Stbd SSDG Water Flow	FAL
29	Stbd SSDG Overspeed	UA
<i>Reduction Gear Lube Oil</i>		
30	Reduction Gear 1 LO Temperature	TAH
31	Reduction Gear 2 LO Temperature	TAH
32	Reduction Gear 3 LO Temperature	TAH

NO.	ALARM DESCRIPTION	TYPE
33	Reduction Gear 4 LO Temperature	TAH
34	Reduction Gear 1 LO Pressure	PAL
35	Reduction Gear 2 LO Pressure	PAL
36	Reduction Gear 3 LO Pressure	PAL
37	Reduction Gear 4 LO Pressure	PAL
<i>Sea Water Cooling</i>		
38	Sea Water Cooling Pressure 1	PAL
39	Sea Water Cooling Pressure 2	PAL
40	Sea Water Cooling Pressure 3	PAL
41	Sea Water Cooling Pressure 4	PAL

430.4 Fire Detection

The Pilothouse and Tank Rooms shall be fitted with ionization type smoke detectors. The Engine Rooms overhead shall be fitted with rate compensated temperature detectors. Both styles of detectors shall be spaced such that no point on the overhead of monitored space is more than 10 feet from a detector. Temperature detectors shall not be mounted over engines. Where beams or girders extend below the ceiling, the detectors shall be located as to be most effective.

The Main Deck shall be fitted with two (2) manual call stations, one (1) on each side of the Passenger Space in a readily visible location.

All detectors and manual call stations shall be interfaced with an approved Fire Alarm System to provide indication and alarm functions to the crew. The fire alarm panel shall be located in the Pilothouse. The fire alarm panel shall provide a common alarm output to the IMACS.

430.5 Pilothouse Console Components

See Reference (1A) for arrangement of components and devices mounted at each control station. All lights shall be dimmable.

437 Tank Level Indication

The fuel oil, sewage, and potable water tanks shall be equipped with ultrasonic or radar type tank level monitors. Tank level monitors shall relay continuous level indication to the IMACS panel located in the Pilothouse. The IMACS system shall be programmed to alarm for high and low levels as described in Section 430.3. An additional remote display with cover shall be provided and installed at the filling station on the foredeck. The Contractor shall install stand pipes for the tank level monitors if required.

439 Closed Circuit Television

439.1 System Equipment

A CCTV system shall be provided with coverage of all accessible passenger spaces and machinery spaces with monitoring capabilities in the Pilothouse, as indicated below. Specific locations of all equipment will be determined by NCDOT during detailed design.

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<u>Qty</u>	<u>Item</u>
2	Port Engine Room
2	Starboard Engine Room
1	Port Jet Room
1	Starboard Jet Room
2	Looking forward at dock approach
2	Looking outboard aft
1	Upper Deck Passenger Area
1	Main Deck Passenger Area Aft
1	Main Deck Passenger Area Forward
1	Food Services
2	Foredeck
2	Aft Main Deck

The system installation shall include all cabling, foundations, power supplies, and mounting hardware for a complete, functional system. Cabling will consist of IE CAT 6E cable capable of power over Ethernet. External cameras shall be weatherproof.

Cameras shall be high resolution, outdoor ready, vandal-resistant, dome type cameras with mirrored domes.

Final direction and location of cameras shall be approved by the NCDOT Representative.

439.2 Modes of Operation

All camera inputs will be recorded and stored on a DVR system for a minimum of 72 hours. Camera views are to be user selectable for the monitor in the Pilothouse.

UPS shall be integrated to the DVR, through the USB interface, to provide an orderly shutdown of the DVR after loss of power and before the UPS batteries are depleted.

446Ac Access and Wireless Systems

The Contractor shall provide and install a mobile broadband Ka-Band VSAT system and necessary components to provide broadband satellite internet connectivity to the vessel for the entirety of the route between Hatteras Ferry Terminal and Ocracoke Silver Lake Ferry Terminal.

The Contractor shall ensure installations do not interfere with other vessel equipment, operations, or communications.

The network controller solution shall interface with existing NCDOT systems, utilizing data tracking, virtual controllers, and network security. System capability shall include cloud-based Wi-Fi management, system monitoring and reporting, and content filtering.

All network control equipment will be located in the Pilothouse, with wireless access points installed throughout the vessel. 110 VAC power shall be made available for all equipment. Cabling from the network controller to each access point shall be shielded, plenum, Cat6 type and installed in accordance with equipment manufacturer's requirements and Section 327.

The wireless network equipment shall include the following:

- Outdoor access points utilizing IEEE802.11ac standard with concurrent dual-band (5GHz/2.4GHz) support, internal dual-polarized adaptive antennas, 1200 Mbps total WLAN RF capacity, 10dB interference mitigation, IP-67 rated, optimized for high density environments. Each access point shall be supplied with PoE injector. The quantity of access points is to be determined by the internet service provider during initial site survey.
- One (1) network controller with plug-and play access for users, data rate limitation, differentiated firewall, traffic quota, real-time status information, SSL secure authentication, advertisement support, and customized HTML login pages.
- One (1) uninterruptible power supply (UPS) with 350 VA/255 W capacity, 120 VAC output, NEMA 5-15P cord, and six (6) NEMA 5-15R outlets.
- One (1) outdoor NEMA enclosure.
- One (1) cabinet.
- One (1) marine satellite antenna utilizing Ka-Band satellite bandwidth.

The Contractor shall facilitate an initial site survey of the vessel for the internet service provider prior to system design and equipment installation. The Contractor shall install all equipment in accordance with manufacturer's requirements. Upon completion of installation, an additional survey shall be performed by the internet service provider to verify coverage requirements and operability of the network.

500 AUXILIARY MACHINERY

500.1 References

Reference ID	Number	Title
(5A)	16109-003-065-0	HVAC Block Diagram
(5B)	16109-003-101-1	Profiles and Arrangements
(5C)	16109-003-170-1	Propulsion Equipment Arrangement
(5D)	16109-003-201-1	Machinery Arrangement
(5E)	16109-003-520-0	Sea Chests and Seawater Piping
(5F)	16109-003-521-0	Fire Main System
(5G)	16109-003-528-0	Sanitary Drains and Sewage Discharge System
(5H)	16109-003-529-1	Bilge System
(5I)	16109-003-529-2	Deck Drains
(5J)	16109-003-533-0	Potable Water
(5K)	16109-003-505-0	Mechanical Calculations
(5L)	16109-003-601-2	Food Services Arrangement

500.2 Introduction

This section describes requirements for the vessel's auxiliary systems. The general requirements for all piping systems are addressed herein and the HVAC, seawater, bilge, fire main, sanitary and potable systems are addressed in detail.

503P Pumps

Provide pumps that meet the performance requirements and construction features as described herein and elsewhere in the Specification. Pumps shall be of a high commercial marine standard built in accordance with the standards of the Hydraulic Institute and ASTM F-998. The performance requirements listed in this Specification are based upon preliminary equipment selection, pipe size and estimated system routing. The Contractor shall supply pumps meeting the required flow and head requirements of the installed piping systems.

In general, the use of through-bolts and studs is required for securing pump parts where thread corrosion or seizure may be expected in service. Fasteners shall be stainless steel with threads coated with a compatible anti-seize compound.

Each pump shall have pressure gauges as indicated on the Contract Guidance Drawings. The gauges shall be 2-1/2 inch diameter, liquid filled. Pressure gauges shall be provided with shut off valves and snubbers and shall be mounted directly at each pump. Ball type root valves shall

be located in the sensing source. Gauge piping assemblies shall meet the requirements of ASTM Volume 01.07 "Shipbuilding" Standard F721-81, except that gauge tubing shall be 316 stainless steel. Under no circumstances shall any gauges contain mercury.

Where pump nozzles are of a different size than the connected piping, a tapered transition piece of adequate length shall be used.

A vent tube with a valve shall be located at the top and drain with cap shall be located at the bottom of each casing of all centrifugal pumps. Alternatively, only where it is not possible to provide a vent line directly from the top of the pump casing, the vent line may be located at the discharge from the pump. Vents on seawater pumps shall be fitted with a tube routed to the bilge. Priming vents shall be 1/4 to 1/2 inch in size and fitted with a ball valve and goose neck discharge tube. In general, priming vent tubing and valve shall be stainless steel or copper in copper nickel systems.

Mechanical seals shall be provided for all pumps. All pumps shall be equipped with suitable thrust bearings to absorb any primary residual thrust that may occur during operation or when the pump loses suction. In general, pumps shall be equipped with sealed ball bearings contained in housings and removable as a unit with the pump shaft.

Centrifugal pumps shall be selected to operate at, or near, the maximum efficiency point on the head-capacity curve. The pumps shall have non-overloading power characteristics, and the driver rated horsepower shall at least equal the maximum power requirement of the pump at rated speed without allowance for a service factor.

505P piping

505.1 General

Piping system requirements shall be as described in the various sections of the Specification and as shown on the piping system diagram. Piping diagrams shall be used as guidance.

With the exception of the bilge system, piping systems shall be designed and installed in accordance with the requirements of the USCG. The bilge system shall be in accordance with Lloyd's Register Rules and Regulations for the Classification of Special Service Craft Chapter 15, Section 12. The Contractor shall obtain a waiver from USCG for the alternate bilge system. The Naval Architect will provide a letter supporting the waiver request along with calculation and precedents.

Pipe, valves, and fitting materials shall conform to the materials schedules on the diagrams. Refer to Section 043 for Buy America Compliance requirements. The Contractor shall verify the pipe sizes and pump characteristics given on the diagrams.

Piping shall be led as directly as practicable with a minimum number of bends and fittings and with sufficient joints to provide for removal, inspection, servicing, and replacement of piping, valves, fittings, and equipment. Piping shall be routed to avoid cutting the ship's structure where possible. Pipe bends shall be used to the maximum extent possible in lieu of elbows.

Pockets in pipe lines shall be avoided. Each system shall be provided with fittings, valves, or traps to enable complete drainage of pipes for winter layup. Where pockets do occur, bosses and valves or screwed plugs shall be provided for draining. Piping in each system shall be arranged to drain naturally to the low end.

Piping systems shall be fit up utilizing good ship building practice and appropriate tolerances. All flanged joints shall be made up free of excessive strain.

Vent fittings shall be provided for removal of air in piping installed with unavoidable high points.

Under no circumstances shall thermometer or pressure gauge devices contain mercury.

Unions are not acceptable in piping located behind linings, false ceilings, or in other inaccessible locations.

Cleanout plugs shall be provided in all drain lines.

Exercise care to develop the system arrangements and installation of piping aboard the vessel to permit the following:

- A. Free passage along walkways and ladders
- B. Free access to perform maintenance
- C. Free access to all doors, hatches, and openings
- D. Be free of interference to the ready removal of the vessel's equipment and system components

The Contractor shall lay out piping systems, regardless of size or material, for machine bending to pipe to a minimum radius of three times the nominal diameter.

Where piping penetrates a watertight bulkhead, a deck, or a tank top, an approved penetration fitting shall be used to ensure the tightness of the structure. Penetration details shall be developed as shown on the Contract Guidance Drawings or as approved by the USCG. In no case shall the structural plating form part of the pipe joint.

The Contractor shall ensure that any penetrations through tonnage frames shall be made tight around the pipe, or shall be spaced such that the distance between two edges of two openings is equal, or greater, to the largest dimension of the larger of the two openings.

In order to prevent damage to piping and joints at bulkheads and decks, expansion bends shall be provided as necessary to allow for sufficient piping movement due to the working of the ship's structure. Expansion joints shall not be used except where required in engine exhaust.

Where joints of ferrous and nonferrous materials cannot be avoided, the connection shall be made with a flanged takedown joint fully isolated with gasket and sleeved fasteners using isolating washers under the fastener.

Pipe welding shall comply with the rules and regulations of the USCG and the details of ASTM Volume 01.07 "Shipbuilding" Standard F722-82.

Piping systems containing oils shall be installed so that flanged connectors are located remotely from exposed surfaces having a temperature in excess of 450 degrees Fahrenheit. Protective shielding shall be provided around flanged connections to prevent the possibility of spray onto exposed hot surfaces. Piping shall be located at least 18 inches away from surfaces that have temperatures under the insulation of 450 degrees Fahrenheit.

Pipe fittings shall not be located directly over or within 2 feet of electrical switchboards, panels, disconnects, switches, or receptacles. Pipes shall not be routed directly over engines except for systems which connect to the engine.

505.2 System Design

Piping sizes indicated on the Contract Guidance Drawings are given for reference purposes. The final selection of pipe sizes for fabrication and installation is the responsibility of the Contractor. Fluid velocity criteria given in the following table shall be used in piping system sizing, where D is the internal pipe diameter.

<u>Service</u>	<u>Velocity (ft/sec)</u>	
	<u>Nominal</u>	<u>Maximum</u>
Fuel Oil Suction	$2D^{1/2}$	7
Fuel Oil Discharge	$5D^{1/2}$	12
Seawater Suction	$3D^{1/2}$	7
Seawater Discharge	$5D^{1/2}$	9
Fresh Water Suction	$3D^{1/2}$	15
Fresh Water Discharge	$5D^{1/2}$	20

Pumps shall be provided with ensured suctions either through submergence, foot valves, or priming systems in order that the pump operation is immediate and positive.

Flexible connections shall be provided to isolate vibration and to accommodate thermal growth. In general, fluid piping systems shall use flexible hose assemblies with 37 degree flare swivel end connections on both ends for connections 2 inches and smaller, or flanged flexible connections, for larger connections. Hose assemblies conveying fuel or lube oil shall be USCG-approved flame resistant type. In general, flexible hose assemblies shall not be less than 9 inches long or more than 24 inches long.

Flexible couplings, where supplied, shall be USCG compliant with steel flange retaining rings, chlorobutyl carcass, Hypalon liner and Neoprene cover, or equivalent. Do not install assemblies with Hypalon paint on the outside.

Flexible hoses shall not be painted.

Isolation capability is desired so that individual components may be secured while the vessel is in service. In order to meet operational requirements and to facilitate on-board maintenance, isolation valves shall be incorporated for individual and sectional subdivision, to include all branch lines, mains, and equipment as shown on References (5A) through (5J).

Piping systems and components shall be insulated in accordance with Section 508.

505.3 Valves, Fittings, and Instrument Piping

Valves shall be accessible unless provided with reach rods, remote operators, or some other suitable means of access.

Actuator for sea valves shall be easily accessible.

In general, manually operated valve stems shall be installed with the valve stem rotated above the horizontal plane. Ball valve and butterfly valves shall be installed in such a manner that the valve opens and the handle points with the media flow under normal operating conditions.

Valves shall be right-hand closing and shall have either a rising stem, or an indicator to show where the valve is open or closed.

Unless otherwise noted in the Specification or Drawings, valves that are 2-1/2 inch and larger, except for butterfly valves, shall be flanged and bolted bonnets and packing glands. Valves that are 2 inches and smaller may have union ends and bonnets.

Butterfly valves at sea chest connections shall have lugged bodies. Bodies and disk material shall be as noted in the materials section of the diagrams. Valve stems shall be stainless steel. Valve seats shall be Buna N or Viton as required to suit the service.

Ball valves shall be bolted body construction. Seats and seals shall be PTFE for all services.

Check valves shall be installed wherever flow reversal in the system would be detrimental to the operational requirements.

Spindles, seats, and disks of valves shall all be corrosion resistant material.

Valves, except for small valves with obvious function, shall be provided with labels. See Section 602.

Valve locking devices shall meet the requirements of ASTM Volume 01.07 "Shipbuilding" Standard F993-86, Type II.

505.4 Takedown Joints

Unless otherwise noted in the Specification or Contract Guidance Drawings, flanged takedown joints shall be provided in piping 2-1/2 inches and over, and unions may be used in piping 2 inches and smaller. Takedown joints shall be provided to allow removal of all in line equipment, or to allow removal of equipment normally blocked by the pipe. Takedown joints with isolation shall be installed wherever dissimilar metals are used as described elsewhere in this section.

Flanges in piping shall conform to ANSI standards for appropriate service.

Flat face flanges with full face gaskets shall be used when interfacing with cast material. Flange gaskets shall be asbestos free.

Flange gaskets for CPVC or PEX in freshwater and sanitary discharge systems shall be EPDM rubber. Flange gaskets for engine cooling, fuel oil, vents and fills, firefighting, and HVAC shall be inorganic fiber with a nitrile binder appropriately selected for the system fluid and pressure.

Unions in metal piping shall be ground joint type.

Takedown joints in water tubing shall be SAE 45 degrees flare type, with long nuts. Takedown joints for fuel tubing shall be 37 degree JIC. Jet hydraulic systems shall have SAE J1453 O-ring face seal takedown joints.

505.5 Pipe Hangers

In general, pipe hangers shall meet the requirements of ASTM Volume 01.07 "Shipbuilding" Standard F708. The Contractor shall adjust the design, spacing, and installation of pipe hangers, as necessary, to provide an installation suitable for carrying the weight of the pipe and its contents, including dynamic loading imposed by the operating conditions of the vessel, and to prevent damage from vibration and thermal expansion. The following hanger types, applied to suit the Contractor's needs for ease of installation, facilitate maintenance and minimize maintenance disruption to service may be used:

- Split cap with standoffs
- Nelson hangers
- J-band hangers
- Stauff twin clamp hangers (Preferred)

Hangers shall be fabricated from aluminum. Where dissimilar materials occur, hangers shall be lined with an approved isolation material.

Hangers shall be attached to the pipe with bolted clamps and welded or bolted to the basic ship structure. Care shall be exercised to place pipe hangers so that strain is avoided where piping is connected to machinery. Hangers shall not be welded directly to pipes.

506F Fills and Vents

Arrange fills and vents generally as shown on the Contract Guidance Drawings.

Vent terminals shall be aluminum flanged vertical ball check type with protective mesh screens. Stainless steel flame screens for fuel oil tanks shall meet the requirements of USCG 46 CFR 56.50-85. Potable water tank vents shall be fitted with an insect screen.

Compartment vents shall be as shown on Reference (5A).

Provide the fuel fill and vents with a spill containment of at least twenty-one (21) gallons.

All fill and discharge connections shall be compatible with existing NCDOT shore side facilities.

508P Piping Insulation

All insulation material and installation details shall be in accordance with ASTM Volume 01.07 "Shipbuilding" Standard F683-10, except as modified herein.

Prior to installation of any insulation and/or lagging, the applicable piping installation must have all tests and inspections completed.

Provide piping insulation for hot and cold fluid piping systems including: cold water piping such as sanitary, fresh water, and drains where dripping condensate could cause damage; and hot water piping, and valves.

512 Heating, Ventilation, and Air Conditioning

Design, provide, install and commission heating, ventilation and air conditioning systems for the vessel as shown on Reference (5A) as follows:

- Provide mechanical ventilation system for the Engine Rooms and Jet Rooms as described in Section 512.6 below.
- Provide heat, ventilation, and air conditioning for the Pilothouse and Passenger Space as described in Section 512.7 below.

The HVAC systems and component sizing, airflows, and ducting configurations shown on Reference (5A) are based upon calculations presented in Reference (5K).

The systems shall be complete, with all components and controls necessary for satisfactory operation and performance. The Contractor shall be responsible for completing the detail design, final component selection and system commissioning. The installation shall be completed to the satisfaction of the NCDOT Representative.

512.1 Design Conditions

Use the following design parameters in determining the HVAC requirements and selecting machinery for accommodations, crew and control spaces:

	<u>Cooling Condition</u>	<u>Heat Condition</u>
Outside Conditions	88°F, 75% RH	40°F, 75% RH
Interior Conditions Accommodation Spaces	72°F, 55% RH	68°F, 50% RH
Interior Conditions Machinery Spaces	115°F	50°F
Seawater Temperature	85°F	40°F

Size and select fans, air handlers, control systems, intakes and exhausts, and provide calculations to the NCDOT Representative to confirm compliance with the above requirements.

Provide all supply and exhaust louvers with stainless steel insect screens. Fit exhausts to the weather with aluminum weather louvers.

512.2 Ventilation Ducting

Fabricate Passenger Space ductwork from thin wall aluminum tubing. Where practicable, round ducting is preferred for ease of fabrication and installation. Ducts shall be smooth inside with no protruding edges. All ducts shall be airtight.

Duct joints may be either flanged, or they may have approved clamp or sleeve joints with an approved adhesive tape and duct sealer as suitable for size, shape, and tightness requirements of the duct.

512.3 Fire Dampers

Provide and install fire dampers where required by regulation and as shown on the Contract Guidance Drawings. Fire dampers shall be installed in accordance with applicable USCG requirements, including the provisions of NVIC 9-97 Chg. 1, using stainless steel fasteners.

The following is a list of expected fire dampers. Damper sizes shown are based on preliminary duct and louver sizes in Reference (5A). The final quantity of fire dampers, their locations, and final sizes are subject to detail design of the HVAC system.

Deck	Location	Size
Hold	Port Engine Room Inlet	27" x 27"
Hold	Starboard Engine Room Inlet	27" x 27"
Main	Port Engine Room Outlet	27" x 20"
Main	Starboard Engine Room Outlet	27" x 20"

Fire dampers shall be automatic with electric actuators, power to open/spring to close, and 165 degrees Fahrenheit thermal tripping device.

All fire dampers shall be capable of manual operation. Provide remote closure controls for all fire dampers in the Pilothouse. Locate controls adjacent to the fire detection panel.

Fire damper actuators shall be provided with power from the 120 VAC power distribution system and configured so that interruption of the power will initiate closing of dampers and shutdown of ventilation fans. Dampers shall close automatically upon actuation of the fire suppression system. Dampers and fan shutdowns for each system shall be independent.

512.4 Fans

All fans, with the exception of those incorporated into the air-handling units shall be direct drive (no belts). See Section 329 for electric motor requirements. All fans shall be mounted on rubber-in-shear vibration isolators with a natural frequency below 10 Hz. Provide flexible duct connectors, properly rat-proofed, at the inlet and discharge of each fan as appropriate.

512.5 Testing

Test all HVAC systems in accordance with Section 982.

512.6 Hold and Machinery Space Ventilation

Engine Rooms

Provide and install Engine Room ventilation systems generally as shown on Reference (5A). The systems shall provide mechanical supply at the forward end of each Engine Room with natural exhaust through the aft air exhaust trunks. Fans shall be marine grade with aluminum bodies and composite blades. Fan inlets shall be fitted with a bell mouth.

Fit air inlets leading directly from the weather with aluminum mist eliminators.

Locate fans at Main Deck, outboard under the removable ladders to the Upper Deck. Install a diverter to direct air flow forward towards the generator. Provide controls for the Engine Room fans in each Engine Room.

Supply fans shall be provided with VFDs with control and sensing system to maintain a positive pressure in the Engine Rooms of not more than 0.25 inches of water relative to ambient pressure. This shall be verified on sea trials.

Fire dampers shall be as described in Section 512.3.

Jet Rooms

Provide and install Jet Room ventilation systems generally as shown on Reference (5A). The systems shall provide natural supply with mechanical exhaust.

Tank Rooms and Voids

Provide natural supply and exhaust ventilation for the Tank Rooms, Void 2S, and Void 2P as shown on Reference (5A).

512.7 Accommodation Space HVAC

Passenger Space HVAC

Provide and install a complete HVAC system for the Passenger Space cabin as shown on Reference (5A). The system shall consist of commercial type mini-split units.

The cooling load shall be split evenly between four (4) equally sized outdoor units. Each outdoor unit shall be directly paired with one (1) ductless, recessed ceiling, indoor unit. Evenly distribute the four (4) indoor units within the Passenger Space.

Outside replenishment air shall be provided via supply louvers with manual weather closures located on the forward bulkhead, beneath the visors, in-line with the space overhead. The overhead will serve as a fresh air plenum. The recessed ceiling units shall be supplied with condensate pump and the capability to pull fresh air from the overhead and supply it to the conditioned space. Exhaust air, equal in volume to the outside air, shall be extracted from the Passenger Space via return ducts routed aft from the Passenger Space and the Food Services.

Provide condensate drains for each overhead indoor unit. Route drains to the nearest weather deck drain.

Thermostat for the Passenger Space HVAC units shall be located in the Food Services area. Remote shutdown for HVAC units and exhaust fans shall be located in the Pilothouse.

Other Passenger Space Ventilation

Provide supply and return air ducts in the ADA Head, Head, and Food Services space as shown on Reference (5A). Provide a fan sized for approximately 600 cfm.

Provide adjustable dampers to balance the system.

Pilothouse HVAC

Provide and install a complete HVAC system for the Pilothouse cabin as shown on Reference (5A). The system shall consist of commercial type mini-split units.

The cooling load shall be split evenly between two (2) outdoor units. Each outdoor unit shall be directly paired with one (1) ductless recessed ceiling, indoor unit. Evenly distribute the two (2) indoor units within the Pilothouse. The recessed ceiling units shall be supplied with condensate pump and the capability to pull fresh air from the overhead and supply it to the conditioned space.

Provide condensate drains for each overhead indoor unit. Route drains to the nearest weather deck drain.

Controls for the Pilothouse HVAC units shall be located in the Pilothouse.

520S Sea Water Cooling and Sea Chests

See section 256 for Sea Water Cooling and Section 163 for Sea Chests.

521F Fire Main System

The vessel shall be fitted with a fire main system as shown on Reference (5F). An electric driven fire pump supplying water to four (4) hose stations, located to suit USCG and Owner requirements, shall be provided. Each fire station shall be equipped with a 50 foot length of 1-1/2 inch fire hose, valve, nozzle, hose wrench and storage rack. Hose, valve, and nozzle shall be USCG approved. Fire nozzles shall be combination type.

The fire pump shall be capable of both remote start from the operating station in the Pilothouse and local start at the pump.

All system valves shall be flanged and galvanic isolation kits shall be installed at every material transition.

528S Sanitary Drains and Discharge

The shipyard shall provide and install a sanitary drain system as shown on Reference (5G) serving black and gray water drains. The black and gray water will be collected via a gravity

system into a sewage-holding tank located in the starboard demi hull as shown on Reference(1A). The sewage holding tank shall be a polymer, transportation rated cylindrical, independent tank sized for 200 gallons. Tank level indication shall be as described in Section 437.

Drain piping shall be routed as directly as possible and shall be provided with a sufficient number of accessible cleanout connections for clearing the drain pipes by use of a plumber's snake or a pressurized water hose.

Where a drain is combined with other drains, "Y" or "Y-Tee" branches or fittings shall be used to facilitate flow. All drains shall be independently trapped and provided with an accessible cleanout connection.

Provide and install sanitary fixtures and accessories for the Passenger Heads and Food Service Area generally where indicated on Reference (1A). See Section 644 for plumbing fixture specifications. Install fixtures and accessories to the vessel's structure in a manner that does not impair the integrity nor damage decorative linings.

Furnish lavatory fixtures complete with valves, faucets, stops, drain fittings, vents, and hangers.

Deck drains shall be fitted with removable strainer plates and integral traps. Deck drain fittings shall be anodized aluminum.

Sanitary drain piping shall be CPVC above the Main Deck and aluminum piping within the hold.

Test piping system in accordance with Section 982.

A solids handling, sewage discharge pump sized for 40 gallons per minute shall be provided. The pump will take suction from the tank and discharge to a camlock type fitting on the Main Deck forward.

529Dr ainage Systems

529.1 Bilge System

The bilge system shall be in accordance with Lloyd's Register Rules and Regulations for the Classification of Special Service Craft Chapter 15, Section 12.

Each watertight below deck compartment shall have a bilge level sensor and an independent submersible bilge pump. Each Engine Room shall be equipped with two (2) pumps per Lloyd's Rules.

Seawater resistant flex hoses of substantial construction shall be installed from the discharge of the each pump to the overboard connection.

A visual and audible alarm shall be provided in the Pilothouse to indicate a high water level in any of the watertight below deck compartments. All pumps shall be non-automatic, manual operation, and switched from the Pilothouse. A visual indicator must also be provided to indicate when any of the bilge pumps is in operation.

529.2 Deck Drains

Weather deck drains shall be provided for the Pilothouse top and the Upper Deck as shown on Reference (5I). Drains for the Pilothouse top and Upper Deck shall be led inboard of the structure and hidden from view where possible. The Upper Deck drains shall be led over the side on the Main Deck as shown on Reference (5I).

Trough drains with stainless steel grate shall be installed at the top of each stair to the Upper Deck.

Deck drain fittings shall be anodized aluminum with removable strainer plates.

533P Potable Water System

Provide and install a potable water system as shown in Reference (5J). The system shall meet all the applicable requirements of the USCG, USPHS and the World Health Organization.

The potable water tank shall be located as shown in Reference (5D). The potable water tank shall be a polymer, transportation rated cylindrical, independent tank sized for 200 gallons. Tank level indication shall be as described in Section 437.

Provide a filling station for the potable water system located forward on the Main Deck as shown in References (5B) and (5J). The fill connection shall be 24 inches above the deck fitted with a male camlock fitting and cap. Mark with an engraved label plate stating POTABLE WATER ONLY. The filling station must meet the requirements of USPHS.

The Contractor shall provide two (2) potable water pumps with integral flow and pressure switches. Each pump shall be capable of 8 gpm at 50 psig. During normal operation, one (1) pump will pressurize the system and the other shall be on standby. Pumps shall be equipped to start at 40 psig and turn off at 60 psig.

One (1) ASME rated diaphragm-type potable water pressure tank shall be provided. The pressure tank shall have a minimum volume of 18 gal, and a pressure rating of 125 psig.

Install piping to distribute potable water to the vessel's lavatories, food service sink, toilets, hot water system and hose bibs located as shown in References (5J) and (1A). All components in the system shall be rated for a working pressure of 100 psig minimum. Piping shall be cross-linked polyethylene (PEX) at and above the Main Deck. Within the hold, piping shall be seamless, type K or L copper tubing.

Provide and install one (1) 4.1 kW, 208 VAC/1Ph tankless hot water heater, selected specifically for lavatory hot water supply. The provided hot water heater shall have a maximum outlet temperature of 110 degrees F. The water heater outlet piping shall have a pressure relief valve installed that cannot be isolated from the water heater.

Appropriate backflow prevention devices shall be provided and installed as shown in Reference (5J) to protect the lavatories and food service sink.

Test piping system in accordance with Section 982.

555F Fixed Fire Suppression

Provide and install fixed fire extinguishing equipment as required by USCG requirements and as described herein. The design, installation, testing and maintenance of the clean agent fire extinguishing system shall be in accordance with USCG and NFPA 2001 Rules and Regulations.

Each Engine Room shall be provided with a fixed, manually operated, total flooding clean agent, non-hazardous, fire extinguishing system, to meet the vendor specified minimum design concentrations.

The system shall include all necessary storage cylinders, piping and control systems, alarms, warning lights, relief valves, discharge nozzles, solenoid shut down and pressure release cylinders, and interfaces with engine, damper, and ventilation controls. The Contractor shall utilize the manufacturer's authorized technicians for final connections and system tests of the fire extinguishing systems. All components of the fire extinguishing system shall be products of the same manufacturer or listed by the manufacturer as compatible with those devices, components, and equipment.

Each Engine Room shall be equipped with a minimum of two (2) discharge nozzles, one (1) above the engines near Frame 5.5 (size 3/4 inch), one (1) in the top of the Engine Room access (size 1/2 inch) near Frame 7, or as directed by the manufacturer. Piping shall be stainless steel, Schedule 40.

Minimum of one (1) clean agent cylinder shall be provided in each Tank Room in accordance with USCG regulations. Manual fire release stations, individual to each Engine Room, shall be located in the Food Services space, as described in Reference (5L). Release of the fire suppression system shall be designed and installed such that the Engine Room fans and engines are simultaneously shut down. Ventilation intake and exhaust fire dampers shall also close on actuation of the fire suppression system.

Clean agent cylinders shall be new, fully charged, and fitted with safety caps where required to protect discharge heads during handling and transportation.

580ANC HOR, MOORING AND TOWING

Vessel shall be equipped with an aluminum fluke anchor suitable for vessels up to 150 feet in length supplied with 25 feet of stainless steel chain and 100 feet of braided synthetic line complete with marker buoy for later recovery. No recovery system shall be provided.

Vessel shall be equipped with six (6) cleats and six (6) chocks appropriately located on the Main Deck.

600 EQUIPMENT AND OUTFIT

600.1 References

Reference ID	Number	Title
(6A)	16109-003-101-1	Profiles and Arrangements
(6B)	16109-003-401-0	Pilothouse Arrangement
(6C)	16109-003-601-0	Passenger Space Arrangement
(6D)	16109-003-601-2	Food Services Arrangement
(6E)	16109-003-631-0	Paint and Vinyl Layout
(6F)	16109-003-635-0	Insulation and Linings Plan
(6G)	16109-003-635-1	Ceiling and Lighting Plan

602Nameplates, Notices and Markings

The Contractor shall furnish all notices, nameplates, notice frames, markings, and labels required to complete the vessel to the satisfaction of the USCG, the Access Board proposed Passenger Vessel Accessibility Guidelines, other regulatory agencies, and the Owner. This includes, but is not limited to, the following items:

- Ship's name and hailing port on the stern and ship's name port and starboard at the bow quarter
- Builder's plaque to be installed in coordination with NCDOT's Representative
- Vessel name boards mounted below bridge wing port and starboard in accordance with Owner preference.
- Intermittent weld at the boot stripe to facilitate future painting operations
- Official Number
- Draft marks forward and aft on the outboard side of each hull per Section 603 of the Contract Specification

The vessel names and hailing port shall be in a style and size approved by the Owner and shall be a contrasting color applied with the exterior vinyl coating system as described in Section 631.

A cast aluminum builder's nameplate with raised letters shall be furnished and installed on the Main Deck port side aft bulkhead of the passenger space (Frame 8). The plaque shall include the vessel's name, hull number, year of construction, the builder and location, the naval architect (Elliott Bay Design Group – North Carolina), the sponsor, and the seal of North Carolina. The layout shall be submitted to NCDOT for approval. The plaque shall be no larger than 18 by 24 inches.

The Contractor shall provide frames for the following items and any additional display documents as required by USCG, locations to be determined by NCDOT's Representative:

- Stability Letter
- FCC Certificate (Owner Furnished)
- Certificate of Documentation
- Certificate of Inspection
- Tonnage Certificate
- Fire & Safety Plan

The following are among the signs required. The Owner will provide specific information regarding quantity, exact wording, placement, size, color, lettering, etc.:

- No smoking
- Video surveillance
- Seats reserved for the elderly and disabled
- No admittance, Crew Only
- Lighted exit signs
- Restroom door

Lifesaving equipment locations:

- Boarding direction signs
- Instructions for using lifesaving equipment
- Signs denoting mobility impaired (wheelchair) facilities
- Fire stations shall be marked with the station number and extinguishers shall be marked as per USCG

The Contractor shall also provide the following:

- All fills, vents, and shore connections shall be labeled and any restrictions on their use
- All tactile and announcement boards required by the Access Board Guidelines
- All emergency lights will be marked with a 1 inch high letter E, white lettering on a red background
- Lifejacket lockers/boxes
- Any spaces that may be deducted from Gross Tonnage shall be marked as required
- The Contractor shall mark all of the required life rings, IBAs, and lifejackets with the vessel name as required by USCG

The Contractor shall provide NCDOT specific stick-on branding items and logos as directed by the Owner so that the vessel matches the exterior appearance of the NCDOT fleet. The Owner will provide information on size, location, quantity, colors, etc. along with the associated graphics files.

603Dr aft Marks

Draft mark datums shall be determined by the Naval Architect. The Contractor shall install draft marks cut from 1/8 inch aluminum plate to be installed as directed by NCDOT's Representative. Draft marks shall be installed in a vertical line with each numeral 6 inches high projected vertically. The bottom of the mark shall be at the foot waterline, and the top of the mark at the

waterline foot plus 6 inches. Draft marks shall be continuously welded and painted in a contrasting color, see Section 631 of the Contract Specification.

612 Rails, Stanchions, and Lifelines

The vessel shall be outfit with storm rails on the deckhouse exterior. Handrails shall be installed as shown on the Concept Plans. Where railings are in Crew Only areas they will be 3 course. Railings in passenger accessible areas shall be Subchapter T compliant.

Provide two (2) ANSI Z359, OSHA certified anodized aluminum personnel access rail systems. One system shall be fitted above the Main Deck windows, port and starboard, for the full length where the superstructure extends to the side to facilitate window maintenance and cleaning. The second personnel access rail system shall be under the Pilothouse forward-facing windows and side windows, running aft (port and starboard) to Frame 13. The systems shall be sized for a 300 pound person. The systems shall be complete with two (2) cars fitted in each section of rail. One (1) car shall be provided for a full body safety harness and one (1) car shall be for a working harness. Stops shall be fitted at the end of each section to capture the cars. Two (2) ANSI approved full body harnesses complete with all rigging shall be provided with the vessel. Grab rails shall be furnished at each end of the track to facilitate crew attaching to or leaving the rail system.

Passenger grab bars shall be provided on the exterior bulkheads between Frames 3 and 8. Grab bars shall also be provided around the after bulkhead at Frame 3. Grab bars shall be brushed aluminum pipe construction with a diameter, height, and offset from the bulkhead in accordance with the Access Board proposed Passenger Vessel Access Guidelines.

622 Deck Plates and Gratings

Gratings shall be provided in both Engine Rooms, both Jet Rooms, and in any void spaces that contain tanks or machinery that require periodic inspection or maintenance. The gratings shall allow easy access to all parts of the space. Gratings shall be aluminum 3/16 inch 6061 T6 tread plate secured to aluminum frames with 316 stainless steel hex head screws. Handrails shall be installed as required to permit safe movement around the machinery space when the vessel is underway. Handrails shall be removable if required for machinery access. Gratings shall be flanged up at the perimeter wherever possible. Hinged access plates shall be fitted in gratings as necessary to gain access to valves or equipment below the gratings, with finger holes for ease of opening. All deck plate accesses shall be labeled as to their purpose. All plates shall be sized so as to be easily removable and reinstalled by one (1) person. Steps shall be provided wherever needed to accommodate changes of elevation or items interfering with the plane of the surrounding deck grating. Removable guards shall be fitted over all shafts or rotating machinery.

The swim step shall have a non-skid 1-inch thick fiberglass grating.

623 Ladders and Stairways

Stairs and ladders shall be located as shown on the Concept Plans. Stairs, vertical ladders and handrails shall be constructed and installed in accordance with the applicable regulatory body requirements. Stairs shall be fitted with handrails and non-slip deck treads. Wherever installed, non-slip treads shall not present a tripping hazard. Handrails supported by bulkheads shall have

a clear hand space of at least 2 inches. Passenger stairs shall generally be a minimum of 34 inches clear width. Stairways to the Upper Deck shall bolt in place to allow them to be removed to provide access to the engine removal soft patches.

Ladders shall be of aluminum construction. All ladders shall be fitted with handrails and overhead grabs as required for safe use. Vertical ladders shall be installed into all voids, Engine Rooms, Jet Rooms, and to Pilothouse top. Rungs welded to bulkhead plate fields will not be permitted. Hull access ladders shall comply with OSHA regulations.

624Non structural Closures

624.1 Interior and Exterior Doors

Doors shall be installed with the properties in the below door schedule. All doors shall be of aluminum construction (door and frame), and shall be bolted in place. All hardware, trim, fasteners, and fittings shall be corrosion resistant satin finished 316SS, unless otherwise approved, and shall be designed for rugged marine applications. Hardware shall be Owner-approved. All stops and hold backs shall be mounted on doubler plates. All exterior doors shall be weathertight (with the exception of the doors to the heads).

Table 6.1: Door Schedule

Deck	Space	Fr. Side	Size (in)	Swing	Sill (in)	Lock	Window (in)	Remarks
Main	Head	3 CL	32 x 78	LH	1	Privacy	None	Closer
Main	ADA Head	5.5 P	36 x 78	LH	1	Privacy	None	Closer, ADA Ramp
Main	ER, S	7 S	28 x 65	LH	6	Cipher	None	
Main	ER, P	7 P	28 x 65	RH	6	Cipher	None	
Main	Passenger Cabin	8 S	36 x 78	RH	1	Keyed Deadbolt	20 x 24	Auto Closer, ADA Assist, ADA Ramp
Main	Passenger Cabin	8 P	36 x 78	LH	1	Keyed Deadbolt	20 x 24	Auto Closer, ADA Assist, ADA Ramp
Main	Passenger Cabin	17.5 S	36 x 78	LH	2	Keyed Deadbolt	20 x 24	Auto Closer, ADA Assist, ADA Ramp
Main	Passenger Cabin	17.5 P	36 x 78	RH	2	Keyed Deadbolt	20 x 24	Auto Closer, ADA Assist, ADA Ramp
Upper	Pilothouse	11 S	30 x 74	LH	3	Cipher	20 x 24	Closer
Upper	Pilothouse	11 P	30 x 74	RH	3	Cipher	20 x 24	Closer

All doors that can be accessed by passengers shall comply with the Access Board proposed Passenger Vessel Access Guidelines, and shall have ramps fitted wherever required and shall minimize tripping hazards. Ramps shall be constructed of built-up, faired epoxy compound. Ramps shall slope at 1/12.

Passenger cabin door windows shall be tinted to match the rest of the windows in the passenger cabin. See Section 625.

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All weathertight doors shall be fitted with dogs as required. The windows fitted in weathertight doors giving access to outside passenger decks shall comply with Access Board requirements. All doors shall be tested for proper closure and tightness and deficiencies shall be corrected prior to sea trials. Doors and hatches required to be closed at sea shall be so marked.

624.2 Hatches

Hatches shall be installed as shown in Reference 6A. All hatches shall be flush hinged quick-acting watertight aluminum hatches. All hatches shall be oval 15 inches x 24 inches with the exception of the Tank Room Void which shall be 24 inches x 24 inches square. Hatches shall not require special tools for opening.

Provide fiberglass hinged hatches over Engine Room access at Main Deck level. These may be secured in either open or closed position.

Tank Void, Engine Room, and Jet Room hatches shall have actuators on both sides.

624.3 Tonnage Opening

Two (2) tonnage openings (3 feet by 4 feet clear) shall be installed in the vessel at Frame 8 in way of passenger door. The bottom edge of the tonnage opening plates shall be unsecured and flush with the deck. All other edges of the closure plate shall be secured with stainless steel hook bolts, spaced no less than 12 inches on center. Construction shall meet the requirements of 46 CFR 69.117.

Food Service counter shall be removable and fastened so as not to violate tonnage opening requirements.

625 Windows

Windows shall be installed as shown in the Reference 6A. Unless otherwise stated, all windows shall be glued on type and low-e. All passenger space windows shall be fixed. Windows in the Pilothouse shall be fixed except that one window on each side shall be an aluminum framed, horizontal sliding window. Window thicknesses and glass types shall be as shown in the table below or as approved by USCG.

Table 6.2: Window Schedule

Location	Thickness (in)	Radius (in)	Glass Type*	Remark
House Side	1/4	-	Single Pane SG	48 inch width to match mullion spacing
Pilothouse Side	1/4	-	Single Pane SG	-
Pilothouse Sliders	1/4	-	Single Pane SG	-
Pilothouse Aft	1/4	-	Single Pane SG	-
House Front	3/8	-	Laminated SG	-
Pilothouse Front	1/2	-	Laminated Pane SG	Heated

* SG = Safety Glass

All windows shall be tinted with 14% light transmission, or to the satisfaction of the Owner's Representative. Pilothouse windows shall not be tinted. Forward-facing Pilothouse windows shall be fitted with an integral clear thin-film electrical heater. In addition to space HVAC for the Pilothouse, conditioned air shall be directed upon the windows for defogging.

The aft windows of the Pilothouse shall be equipped with privacy roller shades). The Pilothouse shades shall be manually operated. Shade fabric color shall be approved by Owner's Representative.

The Contractor shall exercise extreme care in the sizing, layout, and design of Pilothouse windows. Visibility for the crew during vessel operations shall be enhanced to the greatest extent possible. The window installations shall accommodate the standard ergonomic criteria for human adults. Window mullion widths and other obstructions to view shall be minimized.

All exterior window glass shall be installed using a proven adhesive system. Stainless steel fire clips shall be fitted as required by USCG using externally bolted clip secured to aluminum angles welded to the superstructure plate. There shall be no drilling through the superstructure plate.

626 Window Wipers

The centerline Pilothouse window shall be fitted with a straight line wiper. The operating mechanism shall be at the bottom and the Pilothouse structure below the window shall enable this installation. If the operating system is located at bottom, it may not interfere with the safety line system. Multiple blades shall be installed if required to ensure that visibility is not impaired in heavy rain. The blade shall clear at least ninety percent ($\geq 90\%$) of the glass area. The two (2) windows on either side of the centerline window shall be fitted with marine grade pendulum type wipers. Wiper blades shall clear at least seventy percent ($\geq 70\%$) of the glass area of the windows.

Wiper controls shall be solid state, independent control for each window, with auto park feature. Location of wiper controls shall be approved by the Owner's Representative.

Quiet operation of the wipers is essential. Wipers shall be operating when sound measurements are recorded per Section 073.1 of the Contract Specification.

631 Coating Systems

Vessel exterior shall have a two layer, anti-corrosion, vinyl coating system, on outboard surfaces above the guard plate, color selections to be approved by Owner. No coating will be applied on the interior of the bulwarks or overheads with the exception of exposed unstiffened plate in the passenger cabin and heads. Interior exposed aluminum shall be painted. Interior paint colors and textures shall be approved by the Owner's Representative.

The Contractor shall propose a Painting Schedule which shall be reviewed and approved by the paint vendor(s) before it is submitted to the Owner for approval. The Paint Schedule shall include information pertaining to paint formulation, surface preparation and cleaning, environmental constraints, and application techniques and tolerances. Paint performance, including, but not limited to, anti-fouling performance, shall be fully warranted by the Contractor.

Contractor shall have a local paint manufacturer's representative approve surface preparation and paint application methodology for hull and deck painting.

631.1 Surface Preparation

Prior to painting, all surfaces must be clean, dry, tightly bonded and free of all corrosion products or chalky residue. Surfaces shall receive an abrasive sweep in accordance with SSPC SP-16 guidelines to achieve a uniform and dense 1.5-4.0 mil anchor profile. Abrasive shall be aluminum oxide or in accordance with vendor recommendations. Hull surfaces where no paint or vinyl film is applied shall receive a light walnut shell sand sweep.

631.2 Hull Paint

Vessel shall be painted from 8 inches above the design waterline following the lines of the hull as shown on Reference (6E) with two (2) coats of anti-corrosive paint and two (2) coats of anti-fouling paint as follows:

Hull paint shall be applied in the following layers in strict accordance with the manufacturer's instructions:

1. Full coat two-component, multi-purpose phenalkamine epoxy; 6-8 mils dry film thickness (DFT); red
2. Full coat two-component high solids amine cured epoxy; 6-8 mils DFT; grey
3. Full coat two component, silicone-based tie coat for fouling release system; 6-8 mils DFT; color other than black
4. Full coat 100% pure silicone binder technology fouling release finish coat; 7-9 mils DFT; black

The hull coating system shall have the following principle characteristics:

- Excellent fouling resistance and release performance
- Low slime pick up and easy slime release
- Regenerating surface
- Biocide-free
- Suitable for high speed vessels with excellent low resistance performance
- Performance for up to 90 months

The hull shall be marked with intermittent weld bead along the top of the paint line.

631.3 Deck Paint

All accessible exterior decks shall be painted with non-skid type light gray paint, except that within 6 inches of the perimeter of the deck edge, deck fittings and vent/fill piping, no paint shall be applied.

Deck paint shall be applied in the following layers in strict accordance with the manufacturer's instructions:

1. Full coat two-component, multi-purpose phenalkamine epoxy; 5-6 mils DFT
2. Full coat two-component, multi-purpose phenalkamine epoxy; 5-6 mils DFT
3. Broadcast non-skid additive (aluminum oxide) to achieve aggressive uniform nonskid surface – encapsulate with multi-purpose phenalkamine epoxy
4. Apply finish coat polyurethane; 3-4 mils DFT

631.4 Superstructure Paint

The Pilothouse top shall be painted white. Pilothouse top paint shall be applied in the following layers in strict accordance with the manufacturer's instructions:

1. Full coat two-component, multi-purpose phenalkamine epoxy; 5-6 mils DFT
2. Full coat two-component, multi-purpose phenalkamine epoxy; 5-6 mils DFT
3. Broadcast non-skid additive (aluminum oxide) to achieve aggressive uniform nonskid surface – encapsulate with multi-purpose phenalkamine epoxy
4. Apply finish coat polyurethane; 3-4 mils DFT

631.5 Draft Marks

Draft marks to be painted white below the design waterline. Above the design waterline draft marks shall be painted black.

631.6 Vinyl Wrap

Vinyl wrap shall be applied as described by Reference (6E). The vinyl wrap system shall be supplied by a manufacturer with extensive experience in high-speed ferry applications. Prior to vinyl application, all surfaces must be clean, dry and tightly bonded. The applied vinyl wrap shall be free of all air pockets and shall be installed by trained tradesmen. Vinyl wrap shall be

applied in accordance with vendor recommendations and requirements. NCDOT Representative shall be onsite for the application.

All passenger seating shall be supplied by a commercial marine manufacturer with extensive experience in high speed ferry outfitting.

631.7 Interior Paint

Interior exposed aluminum shall be painted with single layer, water-based, multicolor finish paint. The paint shall create a mottled patina with a layered natural look that conceals scuffs and stains. Interior paint manufacturer shall provide coatings that have a history of satisfactory use in similar applications.

632S Sea Chest and Pipe Anti-Fouling

The Contractor shall install an acoustic anti-fouling system to protect the sea chests and seawater piping from marine fouling. Specifically, the system shall be arranged to protect each of the five (5) sea chests as well as the seawater piping between the sea chests and the main engines and generators. The fire main piping between the sea chest and fire pump shall also be protected. The system shall consist of vendor provided control panel, junction boxes and emitters. The location and quantity of emitters and junction boxes shall be as directed by the anti-fouling system vendor.

633Cathodic Protection

The Contractor shall design and construct vessels in such a manner as to protect the vessels from the effects of corrosion.

633.1 Isolation of Dissimilar Metals

The assembly of dissimilar metals throughout the vessel shall be in accordance with good shipbuilding practices and all regulatory requirements. Water systems shall be constructed using the same material for piping and fittings throughout the system, except as specifically noted on Contract Drawings. Steel and other non-aluminum metal fittings shall be isolated from the aluminum structure at their mounting surfaces by means of ten (10) mil PVC tape or other approved methods. Wherever possible use insulating sleeves and washers (isolation kits) when fasteners are used in dissimilar metal installations. Stainless steel fasteners in direct contact with aluminum shall be coated with dielectric paste or other compounds designed to prevent corrosion.

633.2 Anodes

The vessel shall be fitted with passive (sacrificial) anode type protection systems with meters installed in the Engine Room to allow for daily assessment of each of the hulls' potential by vessel crew.

Each sea chest shall be equipped with a 10 lb bolt-on anode. Additionally, each transom shall be equipped with three (3) 10 lb bolt-on anodes in way of the waterjets. Anodes shall be mounted on a threaded weld studs attached to doubler plates. Weld studs shall be full penetration welded to the doubler.

Pencil anodes shall be fitted on either side of each seawater strainer and in the suction and discharge of piping to the fire pump. The anodes in the fire system piping shall be located at least 10 pipe diameters from the pump inlet and outlet.

All anodes shall be aluminum meeting MIL-DTL-24779D. Contractor shall provide NCDOT with anode certifications.

634Deck Coverings

Deck coverings shall not be applied until production work, especially welding, has been substantially completed. The decks shall be smooth and fair when deck coverings are applied. All decks shall be bare and left unpainted except as noted. Colors, styles, and textures shall be approved by the Owner's Representative.

A lightweight buttercoat underlayment shall be applied to areas that will have carpet or linoleum installed.

After installation of finished decks they shall be immediately and completely covered with sheet plastic runners and cardboard protection through completion of the delivery voyage in order to protect the finishes.

634.1 Weather Decks

See Section 631.3 for details of non-skid paint.

634.2 Pilothouse

Pilothouse flooring shall be marine grade carpet. Carpet shall be a flocked textile floor covering with 100% nylon type wear layer with an intermediate fiberglass layer and a vinyl cushioned backing. The carpet shall have an anti-microbial treatment compounded into the backing layer to protect against bacteria and dust mites.

634.3 Passenger Spaces

Passenger Space flooring shall be marine grade carpet throughout. Carpet shall be a flocked textile floor covering with 100% nylon type wear layer with an intermediate fiberglass layer and a vinyl cushioned backing. The carpet shall have an anti-microbial treatment compounded into the backing layer to protect against bacteria and dust mites. Carpet shall meet ADA requirements.

634.4 Restrooms & Food Services Spaces

Flooring in the heads and Food Services shall be a resilient, homogeneous linoleum sheet made primarily of natural materials consisting of linseed oil, wood flour, and rosin binders, mixed and calendared onto natural jute backing. Pattern and color shall extend throughout total thickness of material.

Installation shall provide a watertight-sealed flooring surface and shall be carried 4 inches up the perimeter bulkheads.

Linoleum sheet flooring shall meet or exceed all technical requirements of ASTM F2034 Standard Specification for Linoleum Sheet Flooring, Type I.

634.5 Exterior Stairways

Full width and depth aluminum safety treads shall be fitted on all exterior stairs, safety yellow at top and bottom stair. Stair treads shall not present tripping hazards wherever installed.

635 Insulation, Linings and Joiner Bulkheads

635.1 Insulation

Thermal insulation shall be provided in all exterior bulkheads, joiner doors, and overheads with a suitable vapor barrier on the occupied side of the insulation. Care shall be taken to ensure the integrity of this barrier. Vapor barrier may be fiberglass, foil, or BoPET polyester film.

All interior exposed mullions and structure around windows shall be insulated and painted as shown reference 6(F).

The Engine Rooms and air exhaust ducts shall be provided with acoustic insulation for the overhead, forward bulkhead (down to the waterline), and inboard and outboard sides (down to 2 feet below Main Deck). The Engine Room accesses and ventilation air intakes (port and starboard) shall be insulated with acoustic insulation. All beams shall be wrapped. Insulation shall be fiberglass with polycarbonate mass and BoPET polyester film, oil-proof facing, 12 gauge perforated aluminum, 1/16 inch holes on 3/32 inch centers with 41 percent open area and shall be fitted over the acoustic insulation in the Engine Room and Engine Room access.

All insulation shall be applied with welded pins on an 18 inch or less grid, and shall be neatly secured at the perimeters.

635.2 Joinery and Ceilings

A lightweight joiner and ceiling system of aluminum construction shall be installed. Lightweight durable components shall be used throughout.

Joiner linings shall be used to cover any exposed structural stiffening in passenger spaces. Joiner linings shall be 0.065 inch aluminum painted in accordance with Section 631.7. Fur out with 1-inch aluminum square tube, and secure lining with double-sided tape. Finish and color shall be approved by Owner's Representative.

All outside corners of joiner panel bulkheads shall be shielded with shaped 316SS sheathing from the deck up 48 inches to protect corners from damage.

The ceiling system shall be composed of 24 x 24 inch aluminum ceiling tiles, clip in, perforated, with beveled edges. Ceiling panels shall be integrated with the HVAC, CCTV, speakers, and lighting to give a clean finished appearance. Access shall be provided to any equipment concealed above the ceiling tiles or behind joiner panels. All access panels shall be labeled with their use. Ceiling tiles shall be fitted with sound damping insulation. Ceiling panels in the Pilothouse shall have a matte black finish.

637S heathing

See Section 635.1 of the Contract Specification for details regarding sheathing of vessel insulation. Sheathing shall be fitted over insulation in the Engine Rooms and Engine Room access to prevent damage to the insulation and contamination by any spraying liquids.

644S anitary Spaces and Furnishings

The vessel shall be equipped with two (2) passenger heads, one (1) of which shall be ADA-compliant. Each of the heads shall have one (1) each of the following:

- 15 inch x 15 inch SS sink (in non-ADA head only)
- Touch-free faucet
- High Speed Hand dryer
- Mirror
- Low flow toilet for use with freshwater flushing, with remote flushing button located on the bulkhead behind the toilet at waist height; all associated components shall be provided for proper flushing; the ADA toilet shall comply with ADA Access Board requirements
- GFCI receptacle

In addition, the ADA head shall be fitted with one (1) each of the following:

- Baby changing station
- ADA wheelchair restraints
- ADA grab rails
- 23 inch x 19 inch ADA compliant sink

The following items shall be Owner-furnished for installation in the heads by the Contractor:

- Soap dispensers
- Paper towel dispensers
- Toilet paper dispensers

All wall mounted components, including Owner Furnished Equipment shall be provided with a backing plate behind the lining or a suitable foundation.

645P assenger Seats

Passenger seats shall be installed as described in Reference 6C. Passenger seats shall be installed per vendor recommendation. All seating shall be USCG approved for high-speed vessels.

The Passenger Space shall be equipped with ninety six (96) lightweight seats with at least 21 inches clear open between armrests. Interior seats shall be aluminum framed with high quality foam cushions, and shall have built in lifejacket storage with security ties. Interior seat upholstery shall be fabric or mesh panels suitable for sand and salt environment; upholstery styles and colors shall be approved by the Owner's Representative.

The Upper Deck shall be equipped with twenty nine (29) lightweight seats. Exterior seating shall be aluminum framed and designated for all-weather installation.

All passenger seating shall be supplied by a commercial marine manufacturer with extensive experience in high speed ferry outfitting.

Provide and install two sets of stainless steel anchor points for wheel chair tie-downs as indicated on Reference (6C). An additional two sets of tie downs shall be installed on the passenger decks aft of the accommodation as directed by the NCDOT's Representative.

646 Hardware

All items of hardware provided as required throughout this Contract Specification shall be high quality marine hardware. Wherever possible provide 316SS hardware with a satin finish. Coat hooks shall be located at least 72 inches above the deck, except as required by the Access Board Guidelines. Provide coat hooks as follows:

- Four (4) in the Pilothouse
- Two (2) installed in each passenger restroom

651F Food Services Furnishings

Vessel shall be furnished with a small Food Services space complete with the following Contractor-supplied equipment:

- Aft counter space shall be equipped with shelving below counter top with cabinet doors enclosing shelves. Shelves shall be of adjustable height. Counter, structure, and shelves to be constructed from decorative lightweight aluminum honeycomb panels. Counter top shall be covered in 304 stainless steel sheet metal, coved up the bulkhead at least 4 inches. Cupboards shall be fitted with positive-locking latches and sea rails.
- Forward service counter with hinged folding counter section for crew access. Folding section to be provided with hold-back for open position. Space below counter shall be equipped with open shelving of adjustable height fitted with sea rails. Counter top, structure, and shelves to be constructed from decorative lightweight aluminum honeycomb panels. Forward service counter shall be constructed such that it may be removable.
- Sink, dual compartment, 10" Deep.
- Sink faucet, included with sink.

All wall mounted components, including Owner Furnished Equipment shall be provided with a backing plate behind the lining or a suitable foundation. Honeycomb core shall be drilled out and filled with epoxy in way of fastenings.

The following items shall be Owner-furnished for installation in the Food Services by the Contractor:

- Refrigerator
- Coffee maker
- Cash register

- Microwave
- Countertop display case
- Hot dog steamer
- Soap dispenser
- Paper towel holder

Counter design, colors, and styles shall be approved by the Owner's Representative.

662P Pilothouse Outfit

The Pilothouse shall be equipped with two (2) identical fixed pilot seats with fore-aft adjustment, air shock height adjustment, adjustable reclining backrest, folding footrests, folding armrests, and 360-degree adjustable swivel pedestal. Joystick control shall be mounted in one armrest of each seat, see section 420.7. Chairs shall be approved by the Owner before orders are placed.

Console shall be fabricated from 3/16" aluminum plate and shall be painted matte black. It shall be fitted with grab rails as shown in Reference (6B). Hinged access panels shall be provided port, center and starboard. Return louvers shall be fitted to accommodate the defrosting system. Two (2) cup holders shall be installed in the console as approved by NCDOT's Representative. At port aft end of the console, install a locker with two shelves providing a minimum of 20 cubic feet of storage. Shelves shall be fitted with sea rails. See Section 420.1 for console mockup direction.

Exposed aluminum structure (mullions and window frames) shall be sprayed with an 80 mil finish ceramic insulation coating and finish painted matte black. The console shall not receive ceramic insulation coating, but shall be painted matte black.

An electric defrosting system shall be installed with two (2) outlet louvers provided for each forward-facing window and one (1) louver each for the forward side windows, for a total of eight (8) outlet louvers.

Provide two (2) binocular boxes in Pilothouse convenient to each chair, location to be approved by NCDOT's Representative.

Provide an upholstered bench with seating for two (2) persons against the aft bulkhead of the Pilothouse.

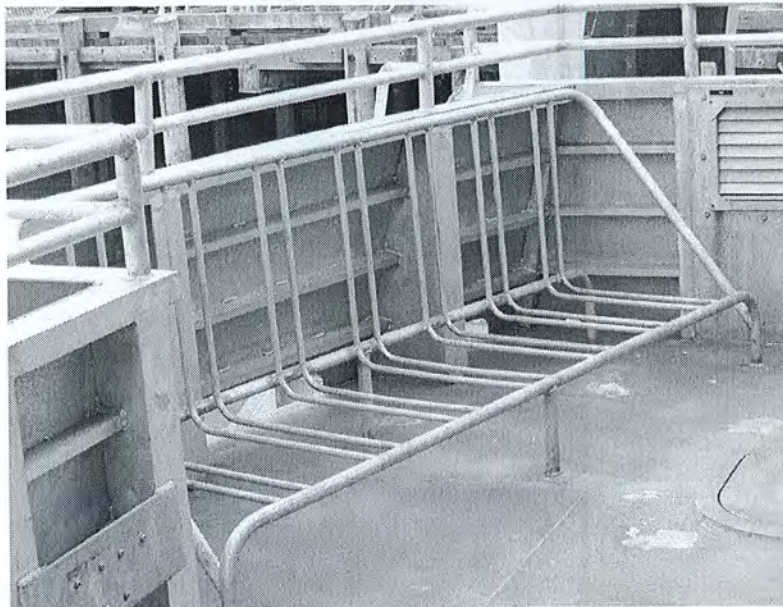
673Bicycle Access and Stowage

The Contractor shall provide bicycle access and a stowage rack on the boarding deck for at least twelve (12) bicycles. The racks shall be designed for horizontal stowage of the bicycles. Traffic flow between the boarding area and the bicycle racks shall allow for efficient loading within the required boarding times (seven minutes).

The racks must be able to accommodate road, mountain, and commuter bicycles. Bicycles must be secured so that they cannot swing into each other or come out of the racks due to vessel motion or acceleration/deceleration.

Take care in the layout and installation of bicycle racks to ensure full crew access to mooring fittings, and to attend to other crew duties. Bicycle racks shall allow for ease of passenger movement and egress. Bicycle racks shall be designed and engineered to be free of vibration at all vessel speeds.

Bicycle storage racks shall be of marine grade aluminum construction. Similar to the photo below:



690LIF E SAVING SYSTEMS

691Life Jackets

The Contractor shall supply a total of 145 life jackets; sizes and storage locations shall be as follows:

- Ninety-Six (96) under seat life jackets, ten (10) of which shall be child size in the Passenger Cabin. See Section 645 regarding under-seat storage.
- One (1) adult life jacket shall be stowed in the Food Services area
- Two (2) adult life jackets shall be stowed in the Pilothouse
- Two (2) adult life jackets shall be mounted on the back bulkhead of the Passenger Space adjacent to the wheelchair tie downs.
- Ten (10) adult and one (1) child size life jacket shall be stored in a fiberglass deck box located forward of the Passenger Cabin bulkhead at Frame 18. This box shall be adequately sized to also stow the Jason's Cradle.
- Twenty-nine (29) adult size and four (4) child size life jackets shall be stored in a fiberglass deck box on the Upper Deck forward of Frame 6.

All life jackets shall be USCG-approved.

The Contractor shall supply white deck boxes with "Life Jackets" boldly printed in red across the forward face of each box.

All life jackets shall be USCG-approved.

All life jackets shall be stenciled in accordance with USCG requirements.

692Inflatable Buoyant Apparatus (IBA)

The Contractor shall provide and install two (2) 50-person, passenger-vessel-type USCG-approved IBAs. Install as shown in Reference (6A). IBAs shall be stowed with a float free configuration that includes a painter, weak link, and hydrostatic release. Handrails shall have chained sections to provide easy access to launch IBAs.

693M OB Recovery System

The Contractor shall provide a USGC approved rescue cradle type, man overboard recovery system. The recovery system shall be 4,000 mm long x 1,050 mm wide. Fixing points shall be installed at the port and starboard forward embarkation gates in accordance with manufacturer's recommendations. The Contractor shall provide a fiberglass storage container fixed to the deck just forward of the passenger cabin bulkhead at Frame 18. This deck box will also stow PFDs as described in Section 691.

694Life Rings

The Contractor shall provide and install four (4) orange ring type life rings and mounting brackets. Two (2) shall be located adjacent to the pilothouse forward of each wing control station, one of which shall be equipped with a light. Two (2) shall be located on the aft Main Deck, one of which shall be equipped with a lifeline. All life rings shall be stenciled in accordance with USCG requirements.

800 INTEGRATION ENGINEERING

800.1 References

Reference ID	Number	Title
(8A)	16109-003-101-1	Profiles and Arrangements
(8B)	16109-003-833-1	Weight Estimate
(8C)	16109-003-835-1	Tonnage Plans and Calculations
(8D)	16109-003-843-5	Stability Assessment

810ENGINEERING AND WORKING DRAWINGS, CALCULATIONS, AND REVIEW

The Contractor shall provide all engineering services necessary for the work in accordance with this Contract Specification. Services shall include technical calculations, surveys, material selection, preparation of diagrams, sketches, schedules, data, and preparation of all working drawings and as-built drawings.

Drawings shall be complete in all detail, serve to gain regulatory approval, and facilitate future use by the NCDOT for maintenance and repair activity. All drawings shall identify make and model of equipment utilized to complete the construction of the vessel. Where an EBDG Contract or Contract Guidance Drawing has been developed for this project, the Contractor may utilize it for further development as needed. Any such revisions shall be clearly and explicitly identified with a revision note and revision mark at the revision. The EBDG title block shall remain on all drawings utilized by the Contractor.

All drawings shall be produced using Computer Aided Design (CAD) in AutoCAD 2017 or most current format. Provide the data files electronically in AutoCAD and PDF as applicable and as 11 inch × 17 inch paper format. The Contractor shall provide full scale printed drawings larger than 11 inch × 17 inch upon request of the Owner's Representative. All delivered PDF files shall be searchable.

The Contractor shall submit a full sample-drawing format showing a typical sheet one and sheet two, including title block, reference, general notes, and revision table format to the Owner's Representative for approval.

The Owner's Representative will review the Contractor's detailed design to determine compliance with the Drawings, Contract Specifications, and Contract. The Owner Representative's review will not relieve the Contractor of responsibility for deviations from this Contract Specification unless the Contractor has provided written notification of any deviation at the time of drawing submittal. Approval of a drawing does not constitute approval of a deviation, mistake, or omission.

The Owner Representative's approval of a deviation from this Contract Specification will not relieve the Contractor of the responsibility for satisfactory operation of the system or equipment.

Work performed by the Contractor prior to the Owner Representative's review and approval, or any required regulatory approval, of the Contractor's drawings will be at the Contractor's own risk.

Booklets of details and calculations may be on sheets 11 inch × 17 inch or 8 1/2 inch × 11 inch.

Symbols on drawings shall conform to recognized marine commercial standards.

Complete bills of materials shall be shown on drawings. Materials on drawings shall have item numbers and be identified in a material list by material specifications, ASTM, ANSI, NEMA, etc., as appropriate.

Valves and equipment on drawings shall have an identifying number, matching the number inscribed on the label or nameplate for that item.

Each drawing shall contain a view showing the entire system covered by the drawing. All drawings shall be initialed in the title block by the drafter and the engineer responsible for the design prior to submittal to the Owner's Representative.

Each drawing shall be checked and finished before submitting. Drawings without appropriate signatures and drawings that are not complete or contain excessive errors will not be reviewed by the Owner's Representative and will be returned to the Contractor for completion. Returned drawing submittals do not count towards fulfilling the Contractor's obligations with regard for scheduling, i.e., all returned drawings must be resubmitted complete within the scheduled time.

Furnish a copy of all written or email correspondence sent to and from regulatory agencies, including vendor submissions, to the Owner's Representative at the time they are sent. A consolidated list of comments shall be maintained by the Contractor and provided to the Owner's Representative.

The Contractor shall submit drawings and engineering calculations, including vendor system drawings and calculations, to the Owner's Representative in a timely fashion according to the approved Master Construction Schedule and the Plan Schedule. When submitting system design drawing, such as piping diagrams and wiring diagrams, include the calculations by which the component were sized. NCDOT will not review these drawings without supporting calculations, equipment drawings and cut sheets. The Owner's Representative will respond to submittals normally not later than ten (10) working days after receipt with "approved", "conditionally approved subject to comments", or "returned for revision and resubmittal". Review responses shall be via email.

The Contractor shall furnish one (1) electronic file copy of each drawing, document, or calculation when submitted to the Owner's Representative for approval. The Contractor shall use a transmittal form for each submittal giving the drawing number, revision letter, title, date submitted, and spaces for the Owner's Representative to enter the return date, approval action, comments, reviewer's name, and the signature of the Owner's Representative. Drawings for submittal shall be complete in all respects with all material and equipment shown and shall be accompanied by supporting calculations.

810.1 As-Built Drawings

Update all working drawings to conform to an as-built condition and stamp "AS-BUILT FINAL" in the title block. The final drawings shall reflect systems and arrangements of each vessel as finally completed and reviewed.

Before delivery of the vessel to NCDOT, the Contractor shall deliver: one (1) full size; one (1) 11 inch × 17 inch drawing set; and two (2) electronic copies of the AS-BUILT FINAL drawing set. The electronic files shall be in AutoCAD 2017 (or current version) .dwg format and in PDF format. All PDF files shall be searchable.

810.3 Vendor System Diagrams

All vendor-supplied systems are to include system diagrams (piping and electrical) providing ship specific system configurations. Wiring and cabling diagrams shall include the cable type and unique designations for each cable. As-built versions of these diagrams shall be provided by the Contractor prior to sea trials for review by the Owner.

810.4 Display Drawings for Mounting Onboard

The Contractor shall develop and provide the following reduced size, non-fading positive prints of drawings to be mounted in the locations noted on board the vessel. These drawings shall be mounted prior to delivery of the vessel to NCDOT. Mount all drawings in anodized aluminum, or stainless steel frames with clear plastic covers.

The set of prints shall include:

<u>Qty.</u>	<u>Description</u>
2	Fire and Safety Plan to be developed by the Owner's Naval Architect. Contractor shall mount plans as directed by NCDOT.

Additionally, the Contractor shall provide and place onboard all plans and documents required by the USCG including documents listed in Section 602. The final locations of all mounted plans shall be subject to approval by NCDOT's Representative.

810.5 Docking Plan

The Owner's Naval Architect will prepare a Docking Plan.

810.6 FCC Certificate

The FCC Certificate will be provided by NCDOT.

833Weight t Estimate

The Contractor shall prepare a detailed weight estimate for the vessel and submit it to the Owner's Representative within forty five (45) calendar days of award of contract. The Contractor shall weigh all items furnished for the vessel and shall update the weight estimate and submit it to the Owner's Representative on a biweekly basis. The weight estimate shall include a

summary page with the current light ship weight estimate, longitudinal center of gravity and vertical center of gravity.

835Tonnage Admeasurement

The Contractor shall be responsible for conducting a tonnage survey. Tonnage admeasurement will include calculation of ITC69 and US regulatory tonnages and issuance of a US National Tonnage Certificate. The Contractor shall be responsible that the vessel be admeasured at less than less than 100 Gross Registers Tons (US domestic). All admeasurement fees shall be to the Contractor's expense.

843Dead Weight Survey

The Contractor shall prepare and submit to the USCG for approval a dead weight survey procedure in order to determine the weight, longitudinal center of gravity and transverse center of gravity of the vessel. The vessel shall be essentially complete and afloat at the Contractor's dock and the "weights to go on/off list" shall be within the tolerance permitted by the USCG. The data gained from this survey shall be used to prepare the stability submittal to the USCG to obtain a stability letter. The Contractor shall supply a copy of the stability model and calculations in electronic format.

851Training

Introductory training shall be provided to the NCDOT operators. The training shall provide an overview of the entire propulsion system, including controls and monitoring. The training shall include start up procedures, operating procedures and shutdown procedures. The training shall include personnel safety procedures. The training shall also include basic maintenance procedures and good practice. The training shall be provided at the NCDOT's Manns Harbor facility immediately prior to delivery of the vessel. It shall be conducted for up to fifteen (15) NCDOT employees.

856Instruction Books, Operating Manuals, and Technical Data Sheets

The Contractor shall provide instruction books and/or operating manuals for all equipment and machinery on board. Before delivery of the vessel, one (1) paper copy and three (3) electronic copies shall be provided to NCDOT.

856.1 Software Programs

Where equipment or systems are programmed for use on this vessel such as may be used in monitoring systems, HMIs, PLCs, door locks, etc., NCDOT shall be provided with the specific program as installed on the vessel and such licensed programs to allow their viewing, modification, updating and troubleshooting. NCDOT shall be the licensed owner/registered user of all programs provided. NCDOT shall be provided with all data link cables for connection between the equipment and a PC.

860Contractor Provided Spares

The Contractor shall supply the following spare equipment delivered to Manns Harbor, NCDOT Facility:

TS-81

NCDOT

North Carolina D.O.T. Pedestrian Ferry

5/10/17

Quantity	Equipment
1	One shaft section of each unique size and configuration
1	Main Engine
1	Generator Set
1	Reduction gear
2	Complete shipsets of all filters
1	Waterjet manufacturer recommended maintenance spares

The spares quantities described above are in total and not per vessel.

900 TESTS, TRIALS AND DELIVERY

900.1 References

Reference ID	Number	Title
(9A)	16109-003-101-1	Profiles and Arrangements
(9B)	16109-003-833-1	Weight Estimate
(9C)	16109-003-835-1	Tonnage Plans and Calculations
(9D)	16109-003-843-5	Stability Assessment

982Te sts and Trials

The Contractor shall conduct a testing program to demonstrate satisfactory workmanship, proper installation of equipment and materials, compliance with the Contract Specification and Drawings, and compliance with regulatory agency requirements.

Alternate test methods from those detailed in this section will be accepted with the approval of USCG inspector, as appropriate, and the NCDOT's Representative. USCG may require more stringent test methods than those outlined in this section; the Contractor is required to satisfy the regulatory test requirements.

The Contractor shall submit a complete schedule of tests to the NCDOT's Representative for approval not less than thirty (30) calendar days prior to commencement of testing. The Contractor shall prepare test and trial agenda. Dock trials, Builder's trials and sea trials shall be conducted in accordance with applicable sections of SNAME T&R Bulletin No. 3-47 "Guide for Sea Trials," 2015.

The Contractor shall prepare and submit test memoranda of the test results to the NCDOT's Representative for approval. One (1) copy of completed tests and test reports shall be submitted to the NCDOT's Representative.

The Contractor shall bear all expenses, furnish the crew, fuel, water, lubricating oil, special instruments, and supplies required for all tests and for all trials.

982.1 Hull Tests

The purpose of hull tests is to demonstrate the water tightness and fairness of the structure and fittings. It is further intended that the Contractor demonstrate the satisfactory installation and operation, where applicable, of all items of outfit.

Structure

The hull, watertight bulkheads, Main Deck, superstructure, and watertight closures shall be air box or air jet tested to prove tight all exterior surfaces. All watertight tests shall be performed

prior to paint out. Structure shall be measured to ensure that plating is within the tolerances specified in Section 100.2 of this Specification.

The Contractor shall provide a minimum of ten (10) radiographs of shell plate welding at locations approved by the USCG and the Owner's Representative. Note that the USCG may require additional radiographs. These shall be furnished by the Contractor at no additional expense to the Owner. In the event that radiographs do not pass code the Contractor shall furnish two (2) additional radiographs for each failure at locations approved by the Owner's Representative. All repairs shall be approved by both the USCG and the Owner's Representative.

Doors, Scuttles, Manholes, and Closures

Doors, scuttles, manholes, and similar closures which are gasketed shall be chalk tested to prove full gasket contact. Visually inspect other doors, scuttles, manholes, and closures to demonstrate proper workmanship and operation.

Hatches

Machinery removal hatches shall be hose tested prior to being silicone caulked.

Windows and Fixed Lights

Windows shall be hose tested in conjunction with the testing of the adjacent plating.

982.2 Machinery Tests

The Contractor shall test machinery, equipment, piping, and systems according to the following procedures:

Heating, Ventilation and Air Conditioning

Test the electrical circuits of the fans.

Test each system to assure delivery of designed air quantities. Before testing, the following conditions shall exist:

- Systems shall be clean
- Normally open closures and dampers shall be open
- Fans and motors shall run in the proper direction of rotation with correct speed

Operate each system at full capacity. Pilothouse and Passenger Space HVAC shall be tested in both heating and cooling modes to ensure correct operation.

Operate all ventilation system weather closures and fire dampers to demonstrate free operation without binding.

Ensure ventilation shutdowns operate properly. Fans and dampers that are interlocked with fire suppression system release shall be tested using an acceptable method to simulate actuation of system release.

Test each Engine Room ventilation control system to ensure proper operation including maintaining Engine Room pressure at acceptable level. Ensure Engine Room temperature can be maintained at no more than ambient plus twenty-five (25) degrees Fahrenheit.

Piping

Visually inspect all installed piping systems to ensure proper workmanship and completion of tasks in accordance with the Contract Specification requirements.

Piping shall be cleaned after fabrication and care shall be taken to ensure that the piping systems are kept clean during installation.

After installation and cleaning each piping system shall be tested. Equipment, such as strainers and heat exchangers, which are normally subject to the pressure of the system, shall be tested with the system. For equipment such as heat exchangers, pressure shall be applied to one system at a time to allow the unit to be checked for internal leakage.

Pressure shall be applied to each system in its entirety, unless otherwise specified. Hydrostatic pressure specified for the piping systems shall be maintained long enough to check thoroughly for leaks. The Contractor shall retest after any leaks have been repaired to prove each system tight.

The test fluid used shall be compatible with the system being tested.

Shipboard test procedures, in pounds per square in gage, shall be as follows:

<u>System</u>	<u>Test Pressure</u>	<u>Test Fluid</u>
Bilge Piping	30 psi	Fresh water
Fire Main Piping	150 psi	Fresh water
Exterior deck and Sanitary drains	5 psi	Fresh water
Vents	Fill system to top fixture or vent	Fresh water
Diesel oil service piping	15 psi	Oil
Diesel oil fill piping	112.5	Oil
Potable Water	100 psi	Fresh Water
Sea Water Piping	60 psi	Fresh Water

All relief valves and pressure safety devices shall be demonstrated that they operate at their set pressure or shall be provided with current test certification. All pressure gauges shall be provided with lab calibration test and certification stickers along with certifying documents provided to the NCDOT's Representative.

All fuel and oil hose assemblies shall be hydrostatically tested and provided with metal tags attached showing their test date and pressures.

Auxiliary Machinery

Each pump shall be tested with its respective system, both hydrostatically to determine tightness, and in operation. The Contractor shall confirm that pump shaft seals are rated for the test pressure. Check each item for proper installation, alignment, and rotation prior to the operating test. Data shall be recorded such that equipment performance can be evaluated and compared with the requirements of the Specification. Generally, the required data shall include the pressure change across the machine, rpm, power consumption, and, where applicable, the performance of controls and functions.

Tanks

Tanks normally vented to the atmosphere shall be tested hydrostatically to 3 psig.

982.3 Electrical Power, Controls and Monitoring Tests

General

Inspect the electrical installation for completeness, including tagging, labeling, and phase balancing of single-phase loads. Operate circuit breakers manually under load to demonstrate proper action.

Generator

The loads used in these tests shall be measured as functions of the rated full load current. The Contractor shall operate each generator for a minimum of four (4) hours between 80% and 100% of their rated load. The Contractor shall operate the generators to demonstrate remote pilothouse transfer of load. The Contractor shall demonstrate that the generators shutdowns operate as required. While testing, the Contractor shall record available parameters.

Insulation Resistance

Measure and record the insulation resistance of each circuit between conductors with branch and main circuit breakers open for all AC power circuits and for DC power circuits over 20 AT protection and elsewhere as required by USCG. Where applicable, the main neutral conductor shall be temporarily ungrounded.

Disconnect the equipment from each circuit to enable satisfactory resistance values to be obtained and to protect the equipment. This test does not apply to signal and control circuits.

Operational Tests

Check all switches, control devices, etc., for proper function. Calibrate and check automatic thermal control devices, alarm and indicator devices. Record the date, any deficiencies and corrections, and the date of satisfactory completion of each test.

Test all alarm circuits by simulating the faults monitored and record performance observed. Monitoring and alarm circuits shall be demonstrated to not alarm under normal transient conditions, when equipment is being started or shutdown, or during operator command changes such as rapid RPM reduction of the main propulsion system.

Check electronic equipment under the supervision of the equipment manufacturer's representative. The electronic system shall not be considered complete until the FCC inspection and certification has been accomplished, and the equipment operation has been demonstrated to the satisfaction of NCDOT.

Test all motor driven appliances under normal operating load conditions. Record operating volts and amps for each motor for each phase. Check all operating pushbuttons, selector switches, pilot lights, remote pushbuttons, pressure switches and control devices to assure their proper operation. Check overload-tripping devices for the proper size heater element and freedom of operation.

982.4 Dock and Builders Trials

Dock trials shall be conducted to demonstrate proper functioning of propulsion systems, controls, auxiliary equipment and safety equipment. At least fourteen (14) working days prior to dock trials the, Contractor will present an agenda to the Owner for review and comment.

Initial start-up and application of load to the main engines will be performed by the Contractor in conjunction with the engine, reduction gear, and waterjet manufacturer's representatives. The manufacturer's representatives will review and approve the installation of the main engines, gears, and waterjets, including alignments prior to engine startup.

Following completion of all preliminary testing, the main engines shall be operated at the dock for a period of four (4) hours. The proper operation of the steering system and waterjet controls shall be verified during dock trials for each waterjet.

Generator startup and testing will be completed in by the Contractor in conjunction with the generator manufacturer's representative. Proper function of the switchboard will be verified by the switchboard manufacturer. After start up and initial testing the generators will be run for four (4) hours.

All auxiliary systems shall be tested at the dock and shown to be fully operational and ready for sea trials.

Upon satisfactory completion of the dock trial, the Contractor shall conduct a Builder's trial to demonstrate that the vessel will satisfactorily perform all requirements.

The NCDOT's Representatives may attend all dock, Builder's, and sea trials.

982.6 Sea Trials

Upon satisfactory completion of the dock and Builder's trial, the vessel shall be taken on sea trials. The sea trials shall be conducted in open water in less than two (2) foot seas and less than 25 knots of wind for a sufficient length of time to accomplish the following tests and trials.

For sea trials the vessel shall be ballasted to simulate the weight of the approved passenger and bike load, with full fuel and water tanks and the sewage tank empty. All outfit shall be onboard and in its permanent location. All safety and lifesaving equipment shall be complete and fully operational.

Sea trials shall be conducted in deep water per the guidelines of SNAME T&R No. 3-47. At least fourteen 14 days prior to sea trials, the Contractor will present an agenda to the Owner and equipment manufacturers for review and comment.

Any test failure that occurs prior to completion shall be repeated in its entirety.

At a minimum the trial shall consist of:

- A. Endurance run of four (4) uninterrupted hours at full speed engine rpm of all four (4) propulsion engines. Operating data shall be taken and recorded for all vessel systems at 15-minute intervals.
- B. Progressive speed trial consisting of reciprocal runs of at least five (5) minutes at engine speeds of 600, 900, 1200, 1500, 1800 and 2100 rpm. Vessel shall reach steady state speed and speed, horsepower and engine rpm shall be recorded for each run.
- C. Emergency crash stop from full speed ahead. Stopping distance shall be recorded.
- D. Emergency steering and maneuvering.
- E. Astern operation and steering up to maximum safe speed. Engine rpm and horsepower shall be recorded.
- F. Steering and maneuvering, including
 - a. Turning circles at full speed
 - b. Split throttle turning
 - c. Ahead steering at full speed
 - d. Zigzag maneuver at full speed
- G. Ensure proper function of all helm controls and stations including proper operation of proportional joystick control.
- H. Test and ensure proper function and arrangement of the Jason's Cradle.

982.7 Test and Trial Instruments

The Contractor shall furnish instruments for operational tests to provide sufficient data to analyze the performance of systems, machinery, and equipment.

Ship's gauges and instruments may be used for tests of the systems they serve. The Contractor shall furnish test instruments and means of connection, as necessary, for additional readings required to test machinery and systems.

Instruments shall be checked against standards at the beginning and end of the test program. If readings taken during a test appear unreasonable, NCDOT shall require the Contractor to check all the instruments, gauges, and thermometers used on the test in question. If testing equipment is found to be out of calibration the Contractor shall repeat the test.

Following completion of sea trials, the Contractor shall coordinate with a local oil test laboratory to perform diagnostic analysis on all lubricants. The tests shall include the standard diagnostics recommended by the engine manufacturer, including tests for water and fuel contamination. Tests shall include a sample of fresh oil of each type, prior to filling machinery, and an operating sample. The operating oil sample shall be drawn from a machine operating at normal temperatures. Samples shall not be drawn from stagnant points in the equipment system.

A spectrographic analysis shall be conducted for trace metals, employing an emission spectrometer for the following elements:

- Iron
- Lead
- Copper
- Chromium
- Silicon
- Molybdenum
- Aluminum
- Nickel
- Silver
- Tin
- Magnesium

The following machinery shall be sampled:

- A. Waterjet hydraulics
- B. Generator engines
- C. Main engines
- D. Reduction gears

983De livery

Upon completion of construction, operational tests, acceptance trials, and after all known defects have been corrected, and the vessel is ready and able to be put into passenger service, the Contractor shall safely deliver the vessel afloat at NCDOT's shipyard located in Manns Harbor, NC. All plans for the delivery voyage shall be approved by the Owner's Representative and the vessel shall at all times be within twenty (20) miles of a port of safe refuge.

The delivery voyage shall not use supplemental fuel tanks or bladders. The NCDOT Representative shall attend the delivery voyage as observer, but shall be given right to stop the voyage in the event of poor weather. Regardless, the voyage shall not proceed if significant wave height exceeds 4'.

At the completion of the delivery voyage and prior to the Owner taking delivery of the vessel, the Contractor shall repeat the sea trials in Pamlico Sound to the satisfaction of the Owner. After completion of these trials the vessel shall be dry docked at NCDOT's expense. The underwater hull surfaces shall be thoroughly inspected and any damage found including that to coatings, plate, equipment and hull fittings shall be repaired prior to acceptance. Damage or defects found shall be the responsibility of the Contractor to arrange and repair before acceptance.

The vessel shall be delivered with a provisional Certificate of Inspection (COI) with the only outstanding requirement being the required USCG testing with the vessel's crew.

NCDOT will provide afloat berthing at the Manns Harbor facility from arrival until acceptance for a maximum of two months.

The vessel shall be in first class condition throughout. The vessel shall be thoroughly cleared of all dunnage, staging, debris, spatters, and dirt and shall be washed down, painted out and left clean. Special care shall be taken to see that all surfaces in bilges, tanks and voids, piping, wireways, machinery, floor plates, and gratings are clean and free from any foreign substances.

The vessel's engines and equipment shall be filled with lubricating oil. Diesel oil remaining on the vessel at delivery will be purchased by NCDOT at the certified cost to the Contractor.

996Lau nching and Dry Docking

The Contractor shall be responsible for the satisfactory launching of the vessel at a time to be mutually agreed upon by all parties concerned. Arrangements for the sponsor will be made by NCDOT. Expenses connected with the launching shall be borne by the Contractor.

While dry-docking prior to sea trials is not an absolute requirement unless the vessel has been in the water for more than twenty (20) calendar days, the Contractor is responsible for conducting sea trials with a clean bottom and clean sea chests. Approximately four (4) calendar days prior to scheduled sea trials, the Contractor shall determine the condition of the bottom and sea chests and notify NCDOT of same. If necessary for the purpose of conducting proper trials, the Contractor shall be required to thoroughly clean the underwater surface of the hull. If the sea trials at Manns Harbor, NC are started within one (1) week of the vessels arrival the bottom need not be cleaned beforehand. If more than one (1) week has elapsed the bottom shall be inspected and if necessary cleaned at the Contractor's expense.

LISTING OF DBE SUBCONTRACTORS			Sheet _____ of _____	
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.

If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

LISTING OF DBE SUBCONTRACTORS			Sheet _____ of _____	
Firm Name and Address	Item No.	Item Description	* Agreed upon Unit Price	** Dollar Volume of Item
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				
Name Address				

* The Dollar Volume shown in this column shall be the Actual Price Agreed Upon by the Prime Contractor and the DBE subcontractor, and these prices will be used to determine the percentage of the DBE participation in the contract.

** Dollar Volume of DBE Subcontractor \$ _____

Percentage of Total Contract Bid Price
_____ %

** Dollar Volume of DBE Subcontractor Percentage of Total Contract Bid Price:

If firm is a Material Supplier Only, show Dollar Volume as 60% of Agreed Upon Amount from Letter of Intent.

If firm is a Manufacturer, show Dollar Volume as 100% of Agreed Upon Amount from Letter of Intent.

FACILITY LOCATION:

All bidders shall specify, in the space provide below, the physical location of the construction facility, which will be used for the construction of this project.

This information will be used by the Board of Transportation when award is made to the Lowest Responsible Bidder. Any substitution of construction site after award of contract must be approved by the Department. The Contractor shall submit any request for facility substitution through the Marine Engineer of the Ferry Division and must provide a valid basis or reason for proposed substitution acceptable to the Department.

(physical address

City and State

LABOR AND MATERIALS SHEET**NEW CONSTRUCTION PASSENGER FERRY****LABOR AND MATERIALS****PER HOUR COST**

a. Price of Chipper	\$ _____
b. Price of Shipfitter	\$ _____
c. Price of Machinist	\$ _____
d. Price of Carpenter	\$ _____
e. Price of Electrician	\$ _____
f. Price of Rigger	\$ _____
g. Price of Pattern Maker	\$ _____
h. Price of Pipe Fitter	\$ _____
i. Price of Welder	\$ _____
j. Price of Sheet Metal Worker	\$ _____
k. Price of Painter	\$ _____
l. Price of Welder Helper	\$ _____
m. Price of Pipe Fitter Helper	\$ _____
n. Price of Electrician Helper	\$ _____
o. Price of General Labor (helper)	\$ _____
p. Price of Crane Operator	\$ _____
q. Price of Crane Service (overhead shop crane)	\$ _____
r. Price of Crane Service (crawler crane)	\$ _____
s. Price of Metal Prep (sand blasting or shot blast)	\$ _____
t. Price of Welding (per linear foot /pass)	\$ _____
u. Price of Galvanizing (hot dip process)	\$ _____

The price charged as itemized opposite each of the above listed artificers will, except as noted, include the cost of materials and tools such as gas, electricity, heat, compressed air, torches, air hammers, forges, welding equipment, welding iron, and all other materials normally employed by artificers in performing operations under their trades, but will exclude the cost of any other materials actually used by the artificers in these processes. When welding is performed, the required number of passes over one (1) foot of seam shall constitute one (1) linear welded foot. Materials used in work, if purchased from the Contractor, shall be priced at his invoiced cost, plus 15 %.

COST BREAKDOWN SHEET

NEW CONSTRUCTION PASSENGER FERRY

INSTRUCTIONS: Contractor shall complete each item below by inserting the appropriate value for each. Lump sum per vessel shall be equal to the total of individual item cost. Please use pen for completion.

<u>ITEM</u>	<u>DESCRIPTION</u>	<u>COST (Labor & Material)</u>
1	Bonding, Engineering & As-built Plans	_____
2	Hull (Material, Fabricate and Erect)	_____
3	Superstructure (Material, Fabricate and Erect)	_____
4	Bulwarks & Outfitting (Material, Fabricate and Erect)	_____
5	Stairways, Ladders & Handrails (Material, Fab. & Erect)	_____
6	Doors, Windows & Manholes (Purchase and Install)	_____
7	Main Engines, Gears and Thrusters (Purchase and Install)	_____
8	Piping Systems (Purchase and Install)	_____
9	Electrical (Generators, Switchboard, Panelboards, Wiring)	_____
10	Joiner (Passenger Lounge, Snake Bars & Wheelhouse)	_____
11	Shafting (Purchase and Install)	_____
12	Electronics (Purchase and Install)	_____
13	Fire, Safety & IBA Inflatables (Purchase and Install)	_____
14	Painting & Hull Markings (Purchase and Install Paint /Vinyl)	_____
15	Dock Trials, Sea Trials and Testing of Systems	_____
16	Delivery (To NCDOT in Manns Harbor, NC)	_____
17.	Cost of Spare Parts	
	<u>Quantity</u>	<u>Equipment Description</u>
	1	One shaft section of each unique Size and configuration
	1	Main Engine
	1	Generator Set
	1	Reduction gear
	1	Complete shipsets of all filters
	1	Waterjet manufacturer recommended Maintenance spares

Lump Sum total of all the above items

(Transfer the Lump Sum total on the above line to the Itemized proposal on the next page)

Line #	Item Number	Sec #	Description	Quantity	Unit Cost	Amount
ROADWAY ITEMS						
0001	0000900000-N	SP	GENERIC MISCELLANEOUS ITEM PASSENGER FERRY	Lump Sum	L.S.	
1235/Mar30/Q1.0/D900000/E1			Total Amount Of Bid For Entire Project :			

ADDITIONAL FERRY VESSEL:

In the space provided below, the bidder shall enter a lump sum price for which he agrees to execute a subsequent supplemental agreement to furnish an additional ferry vessel with identical specifications, quality, performance and all other attributes as required and performed under this contract. Notice of the Department's intent to enter into such agreement, if any, will be given the successful bidder within 90 calendar days of award of this contract. The time frame for constructing the additional ferry vessel will be included in the notice of intent. Such time frame will not begin before August 1, 2017 or after October 1, 2017 and will include a minimum of Two Hundred Seventy-Five (275) consecutive calendar days for construction.

The lump sum bid price submitted for the second vessel's possible supplemental agreement will not be a consideration in determining the low bidder for this contract, however, the bidder must include a lump sum amount in the following space for his bid to be considered responsive.

Lump Sum Amount to construct and furnish additional ferry vessel:

\$ _____

(Contractor Name)

(Signature of Responsible Person)

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
CORPORATION

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

 Full name of Corporation

 Address as Prequalified

Attest _____

Secretary/Assistant Secretary
Select appropriate title

By _____

President/Vice President/Assistant Vice President
Select appropriate title

 Print or type Signer's name

 Print or type Signer's name

CORPORATE SEAL

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

_____ day of _____ 20__.

NOTARY SEAL

 Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION
JOINT VENTURE (2) or (3)

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Instructions: **2 Joint Venturers** Fill in lines (1), (2) and (3) and execute. **3 Joint Venturers** Fill in lines (1), (2), (3) and (4) and execute. On Line (1), fill in the name of the Joint Venture Company. On Line (2), fill in the name of one of the joint venturers and execute below in the appropriate manner. On Line (3), print or type the name of the other joint venturer and execute below in the appropriate manner. On Line (4), fill in the name of the third joint venturer, if applicable and execute below in the appropriate manner.

(1)	Name of Joint Venture
(2)	Name of Contractor
	Address as Prequalified
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Witness or Attest</div> <div style="width: 10%; text-align: center;">By</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Contractor</div>
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div>
	<i>If Corporation, affix Corporate Seal</i> and
(3)	Name of Contractor
	Address as Prequalified
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Witness or Attest</div> <div style="width: 10%; text-align: center;">By</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Contractor</div>
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div>
	<i>If Corporation, affix Corporate Seal</i> and
(4)	Name of Contractor (for 3 Joint Venture only)
	Address as Prequalified
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Witness or Attest</div> <div style="width: 10%; text-align: center;">By</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Signature of Contractor</div>
	<div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div> <div style="width: 33%; border-bottom: 1px solid black; text-align: center;">Print or type Signer's name</div>
	<i>If Corporation, affix Corporate Seal</i>

NOTARY SEAL

Affidavit must be notarized for Line (2)

Subscribed and sworn to before me this _____ day of _____ 20____

Signature of Notary Public
of _____ County

State of _____

My Commission Expires: _____

NOTARY SEAL

Affidavit must be notarized for Line (3)

Subscribed and sworn to before me this _____ day of _____ 20____

Signature of Notary Public
of _____ County

State of _____

My Commission Expires: _____

NOTARY SEAL

Affidavit must be notarized for Line (4)

Subscribed and sworn to before me this _____ day of _____ 20____

Signature of Notary Public
of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS UNDER A FIRM NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor

Individual name

Trading and doing business as

Full name of Firm

Address as Prequalified

Signature of Witness

Signature of Contractor, Individually

Print or type Signer's name

Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

INDIVIDUAL DOING BUSINESS IN HIS OWN NAME

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Name of Contractor _____

 Print or type Individual name

 Address as Prequalified

 Signature of Contractor, Individually

 Print or type Signer's Name

 Signature of Witness

 Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the _____
 _____ day of _____ 20__.

NOTARY SEAL

 Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION

PARTNERSHIP

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Full Name of Partnership

Address as Prequalified

By

Signature of Witness

Signature of Partner

Print or type Signer's name

Print or type Signer's name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

**EXECUTION OF BID
NON-COLLUSION AFFIDAVIT, DEBARMENT CERTIFICATION AND GIFT BAN CERTIFICATION**

LIMITED LIABILITY COMPANY

The person executing the bid, on behalf of the Bidder, being duly sworn, solemnly swears (or affirms) that neither he, nor any official, agent or employee of the bidder has entered into any agreement, participated in any collusion, or otherwise taken any action which is in restraint of free competitive bidding in connection with any bid or contract, that the bidder has not been convicted of violating *N.C.G.S. § 133-24* within the last three years, and that the Bidder intends to do the work with its own bonafide employees or subcontractors and is not bidding for the benefit of another contractor.

In addition, execution of this bid in the proper manner also constitutes the Bidder's certification of status under penalty of perjury under the laws of the United States in accordance with the Debarment Certification attached, provided that the Debarment Certification also includes any required statements concerning exceptions that are applicable.

N.C.G.S. § 133-32 and Executive Order 24 prohibit the offer to, or acceptance by, any State Employee of any gift from anyone with a contract with the State, or from any person seeking to do business with the State. By execution of any response in this procurement, you attest, for your entire organization and its employees or agents, that you are not aware that any such gift has been offered, accepted, or promised by any employees of your organization.

SIGNATURE OF CONTRACTOR

Full Name of Firm

Address as Prequalified

Signature of Witness

Signature of Member/Manager/Authorized Agent
Select appropriate title

Print or type Signer's name

Print or type Signer's Name

AFFIDAVIT MUST BE NOTARIZED

Subscribed and sworn to before me this the

NOTARY SEAL

_____ day of _____ 20__.

Signature of Notary Public

of _____ County

State of _____

My Commission Expires: _____

SIGNATURE SHEET - BID ACCEPTANCE BY DEPARTMENT

Contract No. **C204020**

Counties: **Dare / Hyde**

ACCEPTED BY THE
DEPARTMENT OF TRANSPORTATION

Contract Officer

Date

Execution of Contract and Bonds
Approved as to Form:

Attorney General

DEBARMENT CERTIFICATION

Conditions for certification:

1. The prequalified bidder shall provide immediate written notice to the Municipality if at any time the bidder learns that his certification was erroneous when he submitted his debarment certification or explanation filed with the Municipality, or has become erroneous because of changed circumstances.
2. The terms *covered transaction*, *debarred*, *suspended*, *ineligible*, *lower tier covered transaction*, *participant*, *person*, *primary covered transaction*, *principal*, *proposal*, and *voluntarily excluded*, as used in this provision, have the meanings set out in the Definitions and Coverage sections of the rules implementing Executive Order 12549. A copy of the Federal Rules requiring this certification and detailing the definitions and coverages may be obtained from the Municipality project representative.
3. The prequalified bidder agrees by submitting this form, that he will not knowingly enter into any lower tier covered transaction with a person who is debarred, suspended, declared ineligible, or voluntarily excluded from participation in Municipal contracts, unless authorized by the Municipality.
4. For Federal Aid projects, the prequalified bidder further agrees that by submitting this form he will include the Federal-Aid Provision titled *Required Contract Provisions Federal-Aid Construction Contract (Form FHWA PR 1273)* provided by the Municipality, without subsequent modification, in all lower tier covered transactions.
5. The prequalified bidder may rely upon a certification of a participant in a lower tier covered transaction that he is not debarred, suspended, ineligible, or voluntarily excluded from the covered transaction, unless he knows that the certification is erroneous. The bidder may decide the method and frequency by which he will determine the eligibility of his subcontractors.
6. Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render in good faith the certification required by this provision. The knowledge and information of a participant is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.
7. Except as authorized in paragraph 6 herein, the Municipality may terminate any contract if the bidder knowingly enters into a lower tier covered transaction with a person who is suspended, debarred, ineligible, or voluntarily excluded from participation in this transaction, in addition to other remedies available by the Federal Government.

DEBARMENT CERTIFICATION

The prequalified bidder certifies to the best of his knowledge and belief, that he and his principals:

- a. Are not presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from covered transactions by any Federal department or agency;
- b. Have not within a three-year period preceding this proposal been convicted of or had a civil judgment rendered against them for commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, State or local) transaction or contract under a public transaction; violation of Federal or State antitrust statutes or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records; making false statements; or receiving stolen property;
- c. Are not presently indicted for or otherwise criminally or civilly charged by a governmental entity (Federal, State or local) with commission of any of the offenses enumerated in paragraph b. of this certification; and
- d. Have not within a three-year period preceding this proposal had one or more public transactions (Federal, State or local) terminated for cause or default.
- e. Will submit a revised Debarment Certification immediately if his status changes and will show in his bid proposal an explanation for the change in status.

If the prequalified bidder cannot certify that he is not debarred, he shall provide an explanation with this submittal. An explanation will not necessarily result in denial of participation in a contract.

Failure to submit a non-collusion affidavit and debarment certification will result in the prequalified bidder's bid being considered non-responsive.

☐

Check here if an explanation is attached to this certification.